TOXIC CHEMICAL RELEASE INVENTORY

EXPANSION OF THE LIST OF INDUSTRIAL GROUPS SUBJECT TO REPORTING UNDER SECTION 313 OF EPCRA

INFORMATION COLLECTION REQUEST AMENDMENT
SUPPORTING STATEMENT
(EPA #1784.01)

*** July 11, 1996 ***

CONTENTS

1(a) Title of the Information Collection Request

Proposed Expansion of the List of Industrial GROUPS Subject to Toxic Release Reporting under section 313 of the Emergency Planning and Community Right-to-Know Act [EPA ICR #1784.01; OMB #2070-tbd]

1(b) Short Characterization

This Information Collection Request (ICR) is related to a proposed amendment to the regulations governing toxic chemical release reporting under section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) (42 U.S.C. 11001 *et seq*.) and section 6607 of the Pollution Prevention Act (PPA) (42 U.S.C. 11071 to 11079). A copy of these statutes is included with this ICR submission as Attachment A. In short, EPCRA §313 requires certain owners or operators of certain facilities (i.e., currently manufacturing facilities in Standard Industrial Classification (SIC) codes 20 through 39) manufacturing, processing, or otherwise using any of over 600 listed toxic chemicals and chemical categories (hereafter "toxic chemicals") in excess of the applicable threshold quantities to report on their environmental releases and transfers of and waste management activities for such chemicals annually. Under section 6607 of the PPA, facilities must provide information on the quantities of the toxic chemicals in waste streams and the efforts made to reduce or eliminate those quantities. In 1994, EPA established an alternate threshold for those facilities with low amounts of a listed toxic chemical in wastes. A facility that meets the appropriate reporting thresholds, but estimates that the total amount of the chemical in total waste does not exceed 500 pounds per year, can take advantage of an alternate manufacture, process, or otherwise use threshold of 1 million pounds per year for that chemical, provided that certain conditions are met. Facilities able to take advantage of an alternate threshold would be eligible to submit a Toxic Chemical Release Inventory Certification Statement (EPA Form 9350-2, OMB Number 2070-0143). The reporting requirements described above are the foundation of the Toxic Chemical Release Inventory (TRI).

In accordance with EPCRA section 313 (and PPA section 6607 because of its linkage to EPCRA), EPA's Office of Pollution Prevention and Toxics (OPPT) collects, processes, and makes available to the public all of the information collected. The information gathered under these authorities is stored in a database maintained at both EPA and the National Library of Medicine (NLM); NLM provides public access to the TRI database through the Toxicology Data Network (TOXNET). The TRI has been used extensively by both EPA and the public sector. Program offices within EPA have used the TRI with other sources of data, to establish priorities, evaluate potential exposure scenarios, and for enforcement activities. Environmental groups and public interest groups have used the data in several studies and reports, making the public more aware of releases of chemicals in their communities.

Currently, facilities subject to the TRI reporting requirements may either use the EPA Toxic Chemical Release Inventory Form (aka "Form R"; EPA Form #9350-1), or the EPA Toxic Chemical Release Inventory Certification Statement (aka "Certification"; EPA Form #9350-2). The reporting and recordkeeping associated with Form R were approved by the Office of Management and Budget (OMB) under OMB Control #2070-0093 (EPA ICR #1363). Although

the OMB approval for Form R would have ordinarily expired on November 30, 1992, in September of 1992, this OMB approval was extended by Congress until EPA promulgates changes to the Form R and Instructions.[1] On March 17, 1995, OMB approved the reporting and recordkeeping associated with the Certification under OMB Control #2070-0143 (EPA ICR #1704), which is supposed to expire on September 30, 1996. Pursuant to OMB regulations at 40 CFR §1320.8(d)(1), which requires EPA to announce a proposed renewal of an expiring ICR in the Federal Register and seek additional comments on the burden estimates provided in the ICR, EPA issued a Federal Register notice on May 15, 1996 (61 FR 24488) announcing the proposed renewal of the ICR for the Certification Statement. Comments are due by July 15, 1996.

Under the proposed facility expansion rule, the following industry groups would be required to report under EPCRA section 313 and PPA section 6607: metal mining, coal mining, certain electric utilities, commercial hazardous waste treatment, chemicals and allied products-wholesale, petroleum bulk stations-wholesale, and solvent recovery services. This action is taken under the authority of section 313(b)(1)(B), which allows the Administrator of EPA to modify the list of industries required to report under EPCRA section 313 and PPA section 6607.

The data that EPA currently receives from the manufacturing facilities have provided the public, industry, and all levels of government with critical information related to toxic chemical releases, transfers, and waste management activities that occur within their communities and across the United States. Extending the reporting requirements of EPCRA section 313 and PPA section 6607 to the industry groups in the proposal will provide this critical information for approximately 6,400 additional facilities. These data will become an essential component of facility planning and community awareness and response. Further, access to these data will allow States, communities and the public to engage in an informed way in environmental decision making. The TRI data will be a yardstick by which progress can be measured by these industry groups and local communities and governments.

Comprehensive data about releases, transfers, and other waste management activities of toxic chemicals at the community level generally not available for these industry groups. Permit data often are difficult to obtain, are not cross-media and present only a limited perspective on a facility's overall performance. With TRI, and the real gains in understanding it can produce, communities and governments will know what listed toxic chemicals a subset of industrial

---

[1]This approval was contained in the 1993 Department of Veterans Affairs and Housing and Urban Development and Independent Agencies Appropriations Act, Pub. L. 102-389, signed October 6, 1992, which states that:

> Notwithstanding the Paperwork Reduction Act of 1980 or any requirements thereunder the Environmental Protection Agency Toxic Chemical Release Inventory TRI Form R and instructions, revised 1991 version issued May 19, 1992, and related requirements (OMB No. 2070-0093), shall be effective for reporting under section 6607 of the Pollution Prevention Act of 1990 (Public Law 101-508) and section 313 of the Superfund Amendments and Reauthorization Act of 1990 (Public Law 99-499) until such time as revisions are promulgated pursuant to law.

facilities in their area release, transfer, or otherwise manage as waste; industries will have an additional tool for monitoring efficiency and progress on their pollution prevention goals.

The burden estimates contained in this ICR relate to the burdens that would be imposed if the proposed amendments are finalized as currently presented. These estimates are based on an extensive analysis of the individual industrial groups, which can be found in the Regulatory Impact Analysis that is included in the docket for the proposed facility expansion rule. The addition of the industrial groups identified above is anticipated to generate an estimated 33,463 additional Form R reports and an additional 4,251 Certifications. The proposed rule would result in an estimated 6,428 additional respondents. This will involve a total incremental burden of approximately 3.1 million hours in the first year and 1.9 million hours in subsequent years, at a total cost of $191 million in the first year and $119 million in subsequent years. Facility owners and operators affected by this proposed rule will be subject to: determining the need to comply with the statute, familiarizing themselves with the reporting package and reporting requirements, calculating the required data, completing and submitting the appropriate reporting form, and maintaining the necessary records and documentation. Included in the Form R completion and associated recordkeeping estimates provided in this ICR is the information required to be collected on Form R as mandated by section 6607 of the PPA.

Once EPA issues a final rule, these burdens will be adjusted as appropriate and would need to be added to the existing burdens associated with overall TRI reporting and recordkeeping (i.e., associated with both Form R and the Certification). As such, EPA would need to amend both of the existing ICRs to include this new burden. Specifically, EPA would amend the Certification ICR (EPA ICR #1704) by submitting an Information Correction Worksheet to OMB that adjusts the burden hours associated with that ICR to include the new burden hours imposed by the final rule. In addition, EPA would also need to amend the Form R ICR (EPA ICR #1363) to include the increase in burden hours associated with that ICR to include the new burden hours imposed by the final rule. However, since OMB's approval of an amended Form R ICR would serve as a replacement to the current Congressional Approval, EPA will need to submit a new Form R ICR to OMB that reflects all the burden amendments that have been made to date, as well as those associated with the final rule.

Given this inter-relationship between this ICR and the two existing TRI ICRs, EPA has included copies of the last OMB-approved ICRs for the Form R ICR (EPA ICR #1363) and the Certification ICR (EPA ICR #1704), see Attachment B. In addition, in order to assist the public in commenting on the burdens contained in this ICR amendment, as they relate to existing burdens, EPA has included a discussion of the final net burdens associated with the overall TRI reporting and recordkeeping requirements (i.e., associated with both of the existing forms).

In accordance with OMB regulations at 40 CFR §1320.11(b), this proposed ICR will be submitted to OMB no later than the day upon which the proposed rule is expected to publish in

the Federal Register, which is expected to be on June 27, 1996. Under 40 CFR §1320.11(c), within 60 days of the proposed rule's publication, but not before 30 days, OMB may file public comments on the ICR. These comments will be submitted to the Agency in the form of an OMB Notice of Action and will be made part of the Agency's rulemaking record. Since OMB's action at the proposed stage is to provide comments on the proposed ICR, OMB's action will not have any effect on the current approvals for the existing requirements. In fact, the approval for the Form R ICR (EPA ICR #1363) will remain in effect until EPA finalizes the proposed amendments referenced in this ICR, or otherwise promulgates changes to the Form R and instructions, and the approval for the Certification ICR (EPA ICR#1704) will remain in effect until September 30, 1996 or in accordance with OMB's approval of the renewal request which is expected to be submitted to OMB by July 31.

2 NEED FOR AND USE OF THE COLLECTION

2(a) Need/Authority for the Collection

EPA believes that expanding the universe of industrial groups required to report will provide citizens with a more complete picture of chemical impacts on their communities and help focus these industries' attention on pollution prevention and source reduction opportunities. EPA believes the public has a right-to-know about releases from facilities in these industrial groups and what facilities are doing to manage wastes containing toxic chemicals.

Although current TRI reporting has been successful in providing communities with important information regarding releases and transfers of toxic chemicals, this information has not provided a complete picture. EPCRA section 313 facility coverage is currently limited to facilities in the manufacturing sector, i.e., in SIC codes 20 through 39. According to the Department of Commerce, facilities currently covered by EPCRA section 313 account for only 0.4 percent of the facilities in the United States. And in 1989, the Office of Technology Assessment estimated that the TRI represents 5 percent of toxic releases to the environment. Adding non-manufacturing industries to the EPCRA section 313 list of facilities will provide basic information to millions of Americans on releases and other waste management information on toxic chemicals from additional industrial facilities in their communities.

EPA is proposing this addition of industrial groups under section 313(b)(1)(B) of EPCRA (42 U.S.C. 11013(b)(1)(B)). Under 313(b)(1)(B), the Administrator of EPA has the authority to add SIC codes as long as their addition is "relevant to the purposes" of EPCRA section 313. Under EPCRA section 313(h), submitted data are intended to "inform persons about releases of toxic chemicals to the environment; to assist governmental agencies, researchers, and other persons in the conduct of research and data gathering; to aid in the development of appropriate regulations, guidelines, and standards; and for other similar purposes."

Section 6602 of the PPA establishes a national policy that pollution should be prevented or reduced at the source whenever feasible. To further this goal, EPA is to establish a source

reduction program which, among other responsibilities, is to collect and disseminate information. The information collected under section 6607 is intended to fulfill that responsibility in part and to provide a basis for measuring progress in pollution prevention in certain industrial groups.

2(b) Use/Users of the Data

The data collected under EPCRA section 313 and section 6607 of the PPA is required to be made available to the public. In addition to EPA making the data available through NLM's TOXNET, TRI data are available through the Community Right-to-Know Network (RTK Net), which is supported by the Unison Institute, a non-profit public interest group. The use and users of the data collected on the new facilities will generally be similar as for the manufacturing facilities already reporting. Since EPA first made the TRI data available in April 1989, it has been used by extensively by EPA and numerous other institutions. Environmental groups, public interest research groups, industry, journalists, individuals, and state, county, and local governments have used TRI for various analyses. At least 22 states produced an annual report. The following are some examples of how the TRI data are used, both by EPA and others.

Use of the Data by the Office of Pollution Prevention and Toxics

With the voluntary cooperation of respondent facilities, EPA has established the Industrial Toxics Project, also known as the 33/50 Program. EPA's 33/50 Program targeted 17 priority TRI chemicals for emissions reductions of 33% by 1992 and 50% by 1995, from 1988 levels. More than 1200 companies nationwide have joined this program. The program provides recognition to participating companies, including Certificates of Appreciation to all companies upon enrollment, as well as Certificates of Environmental Achievement to a select group of facilities that have achieved noteworthy reductions. The program reached its interim 33% reduction goal one year early, and reductions by 1993 totaled 46%.

The Office of Pollution Prevention and Toxics' (OPPT) Existing Chemicals Program continues to use the TRI data for risk screening, determining testing needs and priorities, and considering and developing pollution prevention activities. TRI data serve as a major input to exposure and risk assessments in OPPT. The TRI is especially important to OPPT's new initiatives on pollution prevention. TRI data are used for targeting chemicals, uses, and facilities for pollution prevention assessment and for evaluating pollution prevention actions. TRI data also are used in OPPT outreach efforts in responding to inquiries from a variety of sources.

OPPT's Environmental Assistance Division (EAD) has developed software that contains health and ecotoxicity information on most of the section 313 chemicals. This software, called PC-TRIFACTS, enables the TRI data user to better understand the potential health and ecological effects of chemical releases identified in the TRI. TRIFACTS was made available in January, to a wide audience of TRI data users, and has had a very positive response.

From 1989 to 1991, OPPT has prepared annual reports that summarize and compare current and historical TRI data. Beginning in 1992, the TRI data are presented through annual comprehensive data releases. Also, EAD develops two summary reports to distribute to the public at the time the complete national TRI database is first released. One report summarizes the national TRI data, while another report provides more detailed information on a state-by-state basis. These reports help raise public awareness of the TRI data and provide ready access to aggregate information that facilitates tracking of national, state, and industry progress in reducing emissions. Many states prepare similar summary reports for their TRI data each year.

OPPT's Pollution Prevention Division (PPD) has used TRI data as a screening tool to prioritize proposed regulations and industrial source categories to promote pollution prevention in rulemaking. As a result, the Pollution Prevention Senior Policy Council has identified a number of regulatory development efforts that should consider inclusion of pollution prevention measures.

Furthermore, PPD has used the TRI data to conduct a study of the reported differences in releases of TRI chemicals from 1989 and 1990. The study has helped to indicate the relative effect of source reduction, recycling, treatment, production level, and data estimation techniques on the reported change in releases and/or transfers between the two years. This project is being used to further develop the methodology to assess changes over time using the waste management and source reduction data that have become available from the 1991 reporting year.

OPPT is nearing completion of its TRI "Environmental Indicators Model", which provides year-to-year indicators of the potential impacts of TRI chemical releases on human health and the environment. The indicators consider TRI release and transfer volumes, chronic toxicity, exposure potential, and size of receptor populations. Both generic and site-specific exposure characteristics can be incorporated. The model will allow targeting and prioritization of chemicals, industries and geographic areas. Facility scores also may be tracked from year to year to analyze trends.

Use of the Data by the Office of Air and Radiation

The Office of Air and Radiation (OAR) has used the TRI data for a variety of tasks related to the implementation of the Clean Air Act Amendments of 1990 (CAAA). Title III of the CAAA requires EPA to develop Maximum Achievable Control Technology (MACT) standards for major sources of 189 hazardous air pollutants, all but 16 of which were on the TRI list of toxic chemicals prior to EPA’s expansion of the EPCRA section 313 list of toxic chemicals. TRI was used to estimate the number of major sources (greater than 10 tons per year of any single hazardous air pollutant or 25 tons per year of total toxics) of hazardous air pollutants in each of 700 source categories. This information helped to prioritize the source categories for regulatory development. In addition, the impacts of a potential lower major source definition for 47 highly toxic compounds also were analyzed using TRI data.

TRI was used to help identify the 30 hazardous air pollutants to be included in the Urban Area Source Program mandated by Section 112(k) of the CAAA. OAR also has used TRI to expand the coverage of our "Locating and Estimating" series of documents, which help State and local air agencies identify potential source categories of air toxics in their communities. Similar data have been incorporated into the Crosswalk database, which identifies which source categories emit which toxic compounds. OAR is developing a series of air quality indicators to track progress in implementing the CAAA. Trends in the TRI data are envisioned to be a part of those indicators.

Use of the Data in Enforcement Activities

The Office of Enforcement and Compliance Assurance (OECA), and EPA Regions continue to use TRI data as a tool in inspection targeting and enforcement. In addition, TRI data are constantly evaluated with an eye towards sector-wide EPCRA initiatives. Finally, the data are included in a new enforcement database system which is being used to develop and implement multi-media/multi-statute cases and initiatives.

OECA cross-checks data collected under EPCRA and other environmental statutes to identify those facilities or types of businesses which reported for some but not all of the reporting rules. Enforcement personnel are able to identify additional facilities owned by the same corporation or by the same parent company that may be subject to liability, by using TRI data and the Facility and Company Tracking System (FACTS).

OECA uses the TRI data in its EPCRA Targeting System (ETS), which provides local access to TRI and FACTS data for all facilities subject to EPCRA section 313 requirements. ETS supports creation of prioritized inspection targeting lists, generated from a wide array of selection criteria, and daily targeting activities such as contacts with facilities and tracking tips and complaints. Currently, nine out of ten Regional field offices have been introduced to this new system.

OECA also uses TRI data through the Integrated Data for Enforcement Analysis (IDEA) System. IDEA provides integrated data on individual facilities' compliance records for most of the statutes administered by EPA through access to approximately ten separate databases, including the Toxic Release Inventory System (TRIS). The TRI data aid OECA in developing enforcement initiatives by providing a point of departure for distinguishing between industrial sectors based on potential

TRI data continue to be extremely helpful in identifying pollution prevention projects. Enforcement staff use data on releases and transfers to identify (or evaluate) projects that will significantly reduce emissions, or those that will help prevent or minimize the release of extremely hazardous substances under EPCRA section 302.

OECA places a high priority on enhancing the use of TRI data among Regional field personnel. Additional guidance has been provided during FY1996 to the field offices on the

resources available to their inspectors in identifying non-reporters, late reporters and data quality errors. These resources provide the inspectors with valuable information extrapolated from the Toxic Release Inventory, such as facility reporting rates, processes, and releases.

Use of the Data by the Office of Solid Waste and Emergency Response

TRI data may assist in priority setting for waste minimization efforts by the Office of Solid Waste and Emergency Response (OSWER). In combination with other information OSWER collects on waste minimization, TRI data are useful in analyzing long-term trends and identifying particular industry practices that warrant attention by the program. These are some of the ways in which TRI data can serve OSWER pollution prevention goals.

With respect to enforcement, TRI data supplement other existing data sources and can be called on to assist in the development of OSWER enforcement priorities. TRI data also are valuable as a means to assist in establishing liability under both the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Resource Conservation Recovery Act of 1976 (RCRA) statutory authorities.

Another site-specific function of the TRI database relates to its role in providing emission information that can be used when developing emission inventories for the Superfund site discovery program and when undertaking Superfund preliminary assessments of sites. In the reportable quantity (RQ) program, TRI data could be used in analysis to support future rulemaking under CERCLA (e.g. designation of additional hazardous substances). In addition, states will be using the TRI data in conjunction with other data obtained under EPCRA for accident prevention planning.

Use of the Data by the Office of Water

The Office of Water (OW) has used TRI data for identifying candidates for the National Primary Drinking Water Regulations. Chemicals were identified that had a dramatic overall increase (doubling or more) of discharges and releases. These discharges and releases were considered to have direct potential for drinking water contamination and are good candidates for development of regulatory controls.

TRI data were used as a screening mechanism for possible sources of wellhead contamination. Using TRI and other relevant data in a Geographic Information System (GIS) potential contamination sources have been identified. These sources may affect community ground-water systems in the development and implementation of wellhead protection programs. Regions are continuing to coordinate ground-water programs, using GIS as a cross-program tool.

OW also is using the TRI data in development of management plans to identify the sources of toxic discharges into selected estuaries and coastal waters. In addition, the data are

being used to identify sources of toxic discharges that may contaminate sediments that are proposed for ocean dumping.

Under the Watershed Protection Approach, the Regions are using TRI data along with other data in assessing loadings to their watersheds. They are identifying multimedia sources of toxic discharges to receiving waters.

Office of Water Enforcement and Compliance (OWEC) identified industrial users with the greatest contribution of toxic pollutants to city sewer systems. The industries were identified and facility names were provided to the Regions for further evaluation.

OWEC used TRI data to identify industrial users subject to pretreatment standards that are located in cities which are not required to have pretreatment programs. Further work will compare location of users to cities without approved pretreatment programs and may be a way of identifying industrial users for which EPA has regulatory responsibility. The data also were used in compiling the Report to Congress on the National Pretreatment Program. The data and analysis were used to examine what the next steps of the national pretreatment program should be. TRI data were used in providing a broad picture of the types and sources of pollutants discharged to POTWs, and in setting priorities.

OW used TRI data to understand which pollutants are released from pesticide manufacturing facilities and the pattern of releases when developing effluent limitations guidelines and standards for an industrial category. However, the Effluent Guidelines Program screens for a number of pollutants not in TRI. Many pollutants and industries that will be addressed by effluent guidelines are currently reported in TRI.

OW used TRI data and other water emissions data in its National Sediment Contaminant Source Inventory, an evaluation of sources of sediment contamination in the U.S. This project identified point source pollutant discharges that may result in sediment contamination and analyzed these releases based on their potential sediment hazard. Chemical release amounts were weighted by the compound's relative toxicity to aquatic or human health, as well as relevant fate and transport factors. The study identified chemicals, geographic areas, and industrial categories of greatest concern for sediment contamination.

Use of the Data by Other EPA Offices and Regions

Three EPA Regional offices are developing a screening process that will allow decision-makers to focus pollution prevention efforts, exposure and risk assessments, or epidemiological studies on areas of greatest concern. The first phase of the process produces a "Chronic Index" which ranks TRI releases in terms of their relative toxicity. The results of this Index are aggregated by facility, by chemical, and by geographic area using a grid system. The second phase of the process, now under development, will produce a "Vulnerability Index", which

describes the susceptibility of populations by scoring demographic attributes such as age, economic status, and minority status.

Researchers from EPA's Office of Health Research recently published a study of national and regional differences in county-level TRI air emissions according to the ethnicity or race and household income of the populations. Using a measure known as a "Population Emissions Index", a population-weighted average emission for each county, the study found that all minority groups except Native Americans tend to live in counties where TRI air emissions levels are higher than they are in counties where whites live. However, the data also suggest that household incomes tend to be higher in counties with higher TRI air releases.

EPA's Office of Information Resources Management sponsored the development of a Population Estimation and Characterization Tool, which uses GIS technology and demographic data for risk-based and environmental justice applications. The tool allows users to estimate and characterize populations within a given radius of a single TRI facility or multiple facilities and to identify areas of multiple potential exposure.

EPA's Office of Research and Development and Office of Enforcement and Compliance Assurance are developing a "Multi-Media Ranking System" to prioritize sites for enforcement actions and to evaluate the effectiveness of environmental laws in reducing risks from sites. The system ranks sites based on their multi-media releases of pollutants, their potential risk to human health and the environment, and the history of legal violations by the facility. The system combines TRI data with data from EPA air and water databases. For each site, the system develops a Chemical Ranking Factor based on chemical toxicity and fate information, a Vulnerability Ranking Factor based on the climate, soil type, and other environmental properties surrounding the site, and a Population Ranking Factor based on the demographic characteristics surrounding the site.

Use of the Data by Community and Public Interest Groups

Communities use TRI data to begin dialogues with local facilities and to encourage them to reduce their emissions, develop pollution prevention plans, and improve safety measures. Public interest groups use the data to educate the public about toxic chemical emissions and potential risk. A bibliography prepared by the Working Group on Community Right-to-Know in the summer of 1994 lists well over 100 state and local reports and more than 30 national TRI reports compiled by public interest groups (Orum and Wohlberg, 1994). A few of these reports, and other activities conducted by public interest groups, are described below.

- "Manufacturing Pollution", a report produced by Citizen's Fund in August 1992, aggregated 1990 TRI data from different facilities by their parent company, in order to hold corporations more accountable for the full extent of their toxic pollution. The report summarized releases of all TRI chemicals, as well as subsets of chemicals that could cause cancer or birth defects (Citizens Fund, 1992).

- "Poisons in Our Neighborhoods", a report produced by Citizen's Fund in November of 1993, summarized 1991 TRI data nationally and by state. The report attempted to measure the progress of manufacturers in preventing pollution and included report cards evaluating the pollution prevention efforts and performance of the top 50 waste generating facilities in the chemical industry (Citizens Fund, 1993).

- "Troubled Waters: Major Sources of Toxic Water Pollution", a report released by the U.S. Public Interest Research Group in June 1993, examined TRI releases to surface waters and to publicly-owned sewage treatment plants and identified the nation's top releasers of toxics to those water sources. The report made recommendations for amending the Clean Water Act to provide the public more information about toxic releases to waterways and to strengthen enforcement (Hartmann, 1993).

- "Where the Wastes Are", a report released by OMB Watch and the Unison Institute in April 1994, examines facilities receiving the largest quantities of shipments of TRI chemicals in waste. The report identifies the largest off-site recipients overall and in particular categories, such as incinerators and landfills. The report also profiles certain companies active in the operation of these toxic waste management facilities (MacLean and Puchalsky, 1994).

- The Georgia Environmental Policy Institute provided TRI data to a family in southwest Georgia who needed information about toxic releases from a nearby plant to assist their doctor in determining the need for medical testing. Following an incident and evacuation, this same group also provided TRI data to a citizen who inquired about toxic releases from a plant located next to a school (McLure, 1994).

- After an analysis of 1987 TRI data revealed that an IBM plant in the "Silicon Valley" area discharged the largest quantities of ozone-depleting chlorofluorocarbons (CFCs) in California, a public interest group organized a campaign to reduce those emissions. Within months, senior management at IBM had pledged to completely eliminate the use of CFCs in their products and processes at the plant by 1993 (Tryens *et al.*, undated).

- Following the release of an environmental group's report identifying a local facility as the 45th-largest emitter of carcinogens to air in the nation, community activists in Northfield, Minnesota worked with the Amalgamated Clothing and Textile Workers Union to call for emissions reductions. Contract negotiations between the union and the facility resulted in an agreement for a 64% reduction in the use of toxic chemicals by 1992, and a 90% reduction in toxic emissions by 1993 (Settina and Orum, 1991).

- In 1993, the Minnesota Citizens for a Better Environment released a report profiling the state's "top 40 toxic polluters" based on emissions of certain priority chemicals. In addition to TRI data, the report provided other information such as: the facilities'

compliance histories; maps of major streets, schools, health care facilities, and water bodies in the area; information about local populations; contact information for facility representatives, government representatives, civic associations, and other organizations; and toxicity information. The report was designed to provide enough information to support local efforts to negotiate with facilities for emissions reductions. Since publication, activists have worked with 18 of the 40 facilities identified in the report (Doer, 1995).

- After TRI data identified Syntex Chemicals in Boulder as a top Colorado polluter, extensive publicity led to negotiations between local activists and the facility concerning emissions reductions. After a lengthy process that involved the facility's corporate headquarters, the facility signed a good neighbor pledge to reduce its air toxics emissions 50% by 1994 from 1989 levels. The facility also agreed to set up a community advisory panel to facilitate communications between the facility and the community (Settina and Orum, 1991).

- In March 1993, the Texas Network for Environmental and Economic Justice published a report entitled "Toxics in Texas and Their Impact on Communities of Color". This report used TRI and other data to document disproportionate environmental impacts on racial and ethnic minority communities in Texas. The report includes case studies, maps, relevant legal and institutional information, and recommendations (Texas Network for Environmental and Economic Justice, 1993).

Use of the Data by National, State, and Local Government Agencies

National, state and local governments use TRI data to set priorities and allocate scarce environmental protection resources to the most pressing problems. Regulators use the data to set permit limits, measure compliance with those limits, and target facilities for enforcement activities. Twenty-one states use TRI data to target permit compliance inspections of facilities (National Conference of State Legislatures, 1995). The U.S. Internal Revenue Service used TRI data to identify companies releasing CFCs in order to enforce a tax imposed on releases of CFCs (Smith, 1992).

Use of the Data by the Financial and Business Communities

Increasingly, TRI data are being used in financial decision-making. Investment analysts use TRI data to provide recommendations to clients seeking to make environmentally sound investments. Insurance companies look to TRI data as one indication of potential environmental liabilities. Consultants and others use the data to identify business opportunities, such as marketing pollution prevention and control technologies to TRI reporting facilities. Demand for environmental performance information by investors, insurance companies, and the public has led many companies to develop environmental annual reports similar to annual reports on financial performance traditionally prepared for investors.

- The Clean Yield Group, an investment portfolio management group, compares companies' TRI release data to their industry averages of pounds of toxic chemicals per dollars of sales. This serves as a rough yardstick to gauge how the company measures up against other companies in its industry, and allows the investment firm to track how the company's release performance is improving from year to year (Hausman, 1993).

- The Investor Responsibility Research Center, Inc., a not-for-profit research organization for institutional investors, uses TRI data in developing its Corporate Environmental Profile Directory. This directory presents quantitative, consistently-derived data that allows investors to evaluate and compare corporate environmental performance. The corporate profiles include TRI release and transfer data, as well as an "Emissions Efficiency Index" which compares toxic chemical emissions to the company's domestic revenue (Chines, 1994).

- A leading popular business magazine used TRI data as a central element in compiling a "green index" of America's biggest manufacturers. The magazine examined companies' environmental records and developed a relative ranking system that assigned companies scores from zero to 10 in 20 different performance categories, including the amount of toxic emissions per dollar value of sales, and their percent reduction in toxic chemical emissions. The article included lists of 10 leading companies, 10 "laggard" companies, and 10 most improved companies (Rice, 1993).

Use of the Data by the Regulated Community

The public availability of the TRI data has led many corporations to commit publicly to voluntary emissions reductions. The first of these pledges was Monsanto's 1989 commitment to reduce its worldwide air emissions of toxic chemicals by 90% by 1992. Many other companies, including AT&T, Dow Chemical, Dupont, Merck, and 3M, soon followed with their own reductions goals (MacLean and Orum, 1992). In addition to providing the impetus for these reductions pledges, the TRI data also provide the public with the measurement tool needed to track companies' progress, as well as providing the companies a means of demonstrating their commitment and success.

As another example, the Iowa Association of Business and Industry coordinates a community-wide pollution prevention initiative in the Des Moines-Polk County area. The group has adopted goals of a 60% reduction of all TRI chemicals by 1992 and a 70% reduction by 1995 (U.S. EPA, 1993b).

Use of the Data by States

TRI data has provided the impetus for passage of pollution prevention laws in many states. However, states have used TRI data in many ways other than regulating industry. The following are some examples of how various states have use the TRI data. For more information

on how states collect and use the TRI data, see Attachment E for the results of an assessment of state TRI programs conducted by the National Conference of State Legislatures.

- Louisiana's Environmental Leadership Pollution Prevention Program is a statewide emissions prevention and reduction program that seeks a 45% reduction in toxic chemical emissions by 1997, using 1992 data as a baseline. The program sponsors the Governor Awards for Environmental Excellence to promote public recognition of industry achievements (U.S. EPA, 1993b)

- A researcher in Louisiana developed a method for normalizing the TRI data to allow comparisons among facilities, industries and states to help evaluate the comparative effectiveness of pollution control strategies, policies and programs. The method calculates an "emissions to jobs ratio", the number of pounds of emissions per job in a given industry and location. This ratio is then compared to a national or other average to determine relative performance. It also can be tracked over time to evaluate improvement. The "environment-to-jobs" ratio was included in an environmental scorecard which was developed and implemented to modify tax exemptions granted to facilities to encourage and reward job creation. If a facility's environmental score (including the "environment-to-jobs ratio") was low, the amount of the tax exemption could be decreased (Templet, 1993).

- The states of Kentucky, Ohio, and West Virginia have joined together in a "Tri-State Initiative" to identify, prevent and remediate environmental threats in an area known for its industrial base and its susceptibility to air inversions. Program coordinators are using a risk assessment process to focus on sources of greatest concern. The program will use voluntary industry commitments and cooperative efforts between industry, the public and government to achieve reductions in releases of TRI chemicals and criteria air pollutants (U.S. EPA, 1993b).

- The Pollution Prevention Program of the Colorado Department of Public Health and the Environment used TRI data, in combination with other air and water emissions data and hazardous waste data, to identify 10 industry groups which are responsible for the largest quantities of hazardous waste generation or toxic emissions in the state. This study will serve as the basis for establishing priorities for pollution prevention activities and for distribution of technical assistance grants. The report also will be used to target large companies for participation in a Governor's Pollution Prevention Challenge Program to reduce toxic emissions and hazardous waste generation (Kolwey and Lynch, 1994).

- The New Jersey Department of Environmental Protection and Energy used TRI data in a computerized Geographic Information System (GIS) in order to prioritize facilities and geographic areas for implementation of pollution prevention measures. A grid system of 2 mile by 2 mile cells was used for aggregation of air releases and land releases. Minor watersheds were used to aggregate and map water releases. In order to study the

cumulative impact of many releases in the area, chemicals were grouped based on health and environmental effects (Cummens, 1993).

- The Pollution Prevention Division of the state of Georgia's Department of Natural Resources used TRI data in the process of identifying the technical assistance needs of manufacturing sectors that generate chemicals posing the greatest relative risk to public health and the environment. First, the Division prioritized chemicals based on toxicity and regulatory factors. The Division then examined manufacturing sectors releasing the highest priority chemicals and identified particular subsectors for further assessment. The program is now conducting in-depth manufacturing sector assessments, including focus groups and site visits, to determine what processes produce the wastes, what multi-media waste problems exist, what pollution prevention activities are currently being undertaken, and what additional opportunities exists (Donaghue, 1995).

- TRI data helped spur the Louisiana state legislature to require the state Department of Environmental Quality to issue regulations identifying 100 priority pollutants, setting emissions standards for those pollutants, and targeting a 50% emissions reduction from 1987 levels by 1994 (Tryens, *et al*., undated).

- A public interest group report on unregulated air toxics emissions in North Carolina led the state's Environmental Management Commission to set limits for 105 air pollutants (Tryens, *et al*., undated).

- New York State's Department of Health developed a risk screening protocol which uses TRI air release data to produce relative risk rankings for facilities and chemicals within the state. The procedure combines air emissions data and toxicity potency data to give a quantitative risk screening score for each facility. Three separate rankings were developed, based on carcinogenicity, non-cancer endpoints, and a combination of both factors. The results of these rankings suggested to the Department of Health that there is a need for more careful evaluation of potential health effects resulting from large releases of noncarcinogenic compounds such as respiratory irritants and small releases of very potent inorganic carcinogens (Recer and Johnson, 1995).

Used of the Data by Education and Research Institutions

The TRI data are being used in many environmental education programs, particularly at the high school and university levels. Students learn about toxic chemical releases, the potential health and environmental effects of those releases, pollution prevention activities and opportunities, and the social and political aspects of environmental protection. Some organizations also are conducting educational outreach programs using TRI data. For example:

- Students in the Environmental Studies Department at Dickinson College (Pennsylvania) use TRI data to conduct toxic waste audits on communities or facilities. Students identify

epidemiological and environmental health effects, occupational exposure standards, and other relevant information. Students arrange plant tours which focus on toxic chemical use reduction and "good neighbor" agreements between facilities and communities. Students also meet with local citizens, environmental organizations, labor unions and others (“Notes From the Field,” 1992).

- The John Snow Institute Center for Environmental Health Studies has developed a tutorial entitled "Environment and Health: How to Investigate Community Environmental Health Problems". This tutorial introduces the public to TRI and other resources which can be used to identify and address local pollution sources. Audiences include librarians, local officials, members of the media, environmental advocates, the general public, and students from high school to graduate level (Greene, 1995).

- Researchers at the University of California, Santa Barbara's Center for Geographic Information and Analysis used 1989 TRI data and 1990 U.S. Census data to examine and map significant relationships between the race and income of populations and their proximity to TRI sites in Los Angeles (Burke, 1993).

The data use examples presented above illustrate the current widespread use of TRI data by a broad array of constituents. Interest in and use of the data are continuing to grow. More than 500 people attended the most recent TRI Data Use Conference sponsored by EPA in December 1994, by far the most participants ever.

A new initiative to standardize reporting of facility identification information across all major EPA databases will allow better integration of environmental data from a variety of sources. Eventually, this work may lead to "one-stop" environmental reporting for industry, easing their reporting burden while simultaneously improving the accessibility of the information to all users.

3 THE RESPONDENTS AND THE INFORMATION REQUESTED

3(a) Respondents/SIC Codes

The statute applied the reporting requirement to owners and operators of facilities that have 10 or more full-time employees, manufacture or process more than 25,000 pounds or otherwise use more than 10,000 pounds of a listed chemical, and are in Standard Industrial Classification (SIC) codes 20 through 39. As discussed in Section 2(a) of this ICR, EPCRA section 313(b)(1)(B) allows the Administrator to expand the universe of industrial groups required to report. The proposed rule would expand the TRI reporting requirements to the following industrial groups.

SIC Code	Industry Covered by Proposed Rule

Major Group 10, except 1081	Metal Mining (except metal mining services)
Major Group 12, except 1241	Coal Mining (except coal mining services)
4911	Electric Services (coal-fired and/or oil-fired)
4931	Electric and Other Services Combined (coal-fired and/or oil-fired)
4939	Combination Utilities, Not Elsewhere Classified (coal-fired and/or oil-fired)
4953	Refuse Systems (only facilities regulated under RCRA Subtitle C)
5169	Wholesale Nondurable Goods--Chemicals and Allied Products, Not Elsewhere Classified
5171	Petroleum Bulk Stations and Terminals--Wholesale
7389	Business Services, Not Elsewhere Classified (solvent recovery services only)

Establishments that are part of a multi-establishment facility have the option to report separately, provided that all of the releases and waste management data from all of the establishments in that facility are reported.

3(b) Information Requested

(i) Data Items

Reporting Requirements for Form R. Form R consists of two major parts. Part I is for facility identification information such as the name, address, and other identifying information including permit numbers. Part II is for chemical-specific information such as the identity, uses at the facility, quantification of the releases and off-site transfers of the chemical, on-site waste treatment methods and efficiencies, and the new source reduction and recycling data. The current version of Form R is included as Attachment C of this supporting statement.

Form R - Part I. Part I contains five sections. The first section is for identification of the reporting year. The second section is for indication if the toxic chemical is claimed as a trade secret. The third section is a certification statement -- the statute requires a senior official with management responsibility for the person or persons completing the form to certify that the information provided in the form is accurate and correct.

The fourth section is for the identification of the facility and its location. As part of the location information, EPA requires the facility to provide business-related specifics such as its Dun and Bradstreet number and the primary four-digit SIC code. This section also requires the number of the facility's National Pollutant Discharge Elimination System (NPDES) permit, if the

facility has been issued one, the facility's underground injection control (UIC) code, and, if applicable, its EPA Identification number. The fifth section is for identification of the respondent facility's parent company, if applicable, and that parent company's Dun & Bradstreet Number.

Form R - Part II. Part II contains eight sections. The first two are for identification of the chemical or the mixture component. Respondents must identify the chemical or chemical category being reported by the listed name and by the Chemical Abstract Service (CAS) registry number, if applicable. If the facility claims that the specific chemical identity is a trade secret, the respondent must enter a generic name in Section 1.3.

The third section is for identification of the use or uses of the chemical: manufacture, processing, or otherwise use. The fourth section requires an estimate of the maximum amount of the chemical present at the facility at any time during the calendar year. Ranges identical to those implemented in Sections 311 and 312 are used.

The fifth section covers all on-site releases of the chemical to the environment. This includes fugitive and stack air emissions, discharges to streams or other water bodies, underground injection, and releases to land such as to landfills and surface impoundments. The respondent also is required to indicate the basis or technique for estimating those releases. When reporting releases to water bodies, facilities report the name of the body along with the quantity released in Section 5.3.

The sixth section requires respondents to quantify all transfers of the chemical to publicly-owned treatment works (POTWs) and other off-site locations (including other wastewater treatment facilities, and recycling, treatment, or disposal facilities). Section 6 also requires the name and location of all POTWs and other off-site locations to which the chemical is sent for the purposes of recycling, treatment, or disposal facilities that accept chemical wastes from the respondent facility. For other off-site facilities, the RCRA ID number (if applicable) and an indication of whether each such facility is under the control of the reporting facility also is reported.

Section 7 of Form R consists of three subsections. Section 7A is for reporting on-site waste treatment methods and efficiencies. A characterization of the type of waste stream, the waste treatment method(s) applied to that waste stream, and the efficiency of those methods is required. Section 7B is for reporting the methods of energy recovery used on-site. Up to four codes identifying the appropriate activities can be entered. Section 7C is for reporting the methods of recycling used on-site. Up to ten codes can be entered.

Section 8 of the form is for reporting the majority of the source reduction and recycling information as mandated by section 6607 of the PPA. Beginning with the 1991 reporting year, Section 8 is a required section of Form R and must be completed. Section 8 reporting includes on-site and off-site quantities of the toxic chemical released (including disposal), used for energy recovery, recycled, or treated. Quantities are reported for both the current reporting year and the

prior year, as well as quantities anticipated in both the first year immediately following the reporting year and the second year following the reporting year. In addition, Section 8 includes reporting on quantities of the toxic chemical released due to remedial actions, catastrophic events, or other one-time events not associated with production; a ratio of reporting year production to prior year production, or an activity index based on a variable other than production; source reduction activities implemented during the calendar year for the reported toxic chemical; and the method used to identify the source reduction activity. Facilities also must indicate whether additional optional information is being submitted on source reduction, recycling, or pollution control activities.

Reporting Requirements for Toxic Chemical Release Inventory Certification Statement. The following information must be reported on the Toxic Chemical Release Inventory Certification Statement (the Toxic Chemical Release Inventory Certification Statement is included as Attachment C):

- Reporting year
- An indication of whether the chemical identified is being claimed as trade secret
- Chemical name and CAS number (if applicable) of the chemical, or the category or the generic chemical name
- Signature of a senior management official certifying the accuracy of the threshold determination and reported information
- Date signed
- Facility name and address
- Mailing address of the facility if different than (6)
- Toxic chemical release inventory facility identification number if known
- Name and telephone number of a technical contact
- Four-digit SIC codes for the facility or establishments in the facility
- Latitude and Longitude coordinates for the facility
- Dun and Bradstreet Number of the facility
- EPA Identification Number(s) (RCRA I.D. Number(s) of the facility)
- Facility NPDES Permit Number(s)
- Underground Injection Well Code (UIC) I.D. Number(s) of the facility
- Name of the facility's Parent Company
- Parent Company's Dun and Bradstreet Number

These 17 elements are a subset of the information collected on Form R, although the certification statement differs on the Form R and the Toxic Chemical Release Inventory Certification Statement.

Recordkeeping. Facilities must keep a copy of each Form R and Toxic Chemical Release Inventory Certification Statement submitted for at least 3 years from the date of submission. Facilities also must maintain the documents, calculations, and other information they

collected for developing the reports submitted. Documents and records facilities should keep include, but are not limited to:

- Prior years' Form Rs;
- Inventory data and purchase records;
- Process diagrams that indicate releases and waste management activities;
- Monitoring records;
- Flowmeter data;
- Manufacturer's estimates of efficiencies;
- Worksheets, engineering calculations, and other notes;
- NPDES permits and associated data;
- EPCRA Section 312 Tier II reports;
- Pretreatment reports when applicable;
- RCRA manifests;
- RCRA Hazardous Waste Generator's Report; and
- Invoices from waste management companies.

(ii) Respondent Activities

EPA makes Form R, the Toxic Chemical Release Inventory Certification Statement, and detailed instructions and guidance documents available to owners or operators of facilities subject to the section 313 reporting requirements. In addition, a toll-free hotline is available to handle general and technical inquiries from the regulated community. Technical assistance also is available through the EPA Regional offices and States. The regulated community is expected to comply with the reporting requirements by completing either the Form R or the Toxic Chemical Release Inventory Certification Statement and mailing it to EPA and the appropriate state agency. Section 313(g)(2) provides that a "facility may use readily available data (including monitoring data) collected pursuant to other provisions of law, or where data are not readily available, reasonable estimates of the amounts involved." Respondents are not required to develop new information. The following are the respondent activities and are briefly summarized below:

- Compliance Determination
- Report Completion (Compliance)
- Substantiation of a Trade Secret Claim
- Recordkeeping/Disclosure
- Supplier Notification
- Petition Submission (not a requirement)

Compliance Determination. Facilities must first determine if they are required to submit a Form R or are eligible to submit a Toxic Chemical Release Inventory Certification Statement. The determination is based on the SIC code(s) for the facility, the number of full-time employees or equivalents, and the quantities of listed toxic chemicals manufactured, processed, or otherwise used at the facility. For facilities contemplating using the Toxic Chemical Release Inventory Certification Statement, for each toxic chemical facilities also must determine the sum of amounts

in total waste and determine that they did not manufacture, process, or otherwise use more than 1 million pounds of the listed toxic chemical.

Assistance with compliance determination and Form R completion is available through the States and the EPA Headquarters and Regions.

Report or Certification Statement Completion (Compliance). Once a facility has determined that it must comply with the statute, it must submit either a Form R or Toxic Chemical Release Inventory Certification Statement for each reportable chemical. The basic procedure for reporting are detailed in the approved ICRs included as Attachment B and have not changed.

Substantiation of a Trade Secrecy Claim. If a respondent claims that the identity of a chemical is a trade secret, the respondent must support that claim. As the intent of the statute is public disclosure, the burden is upon industry to prove that certain data must be withheld from the public. Information must be provided to EPA that indicates that the identity has not been already revealed, that a competitive advantage would be lost if the identity were revealed, and that reverse engineering could not be performed to reveal the true identity of the substance if trade secrecy was granted. Trade Secrecy Substantiation, including the costs to industry, is discussed in greater detail in the ICR for the Trade Secrecy Rule for EPCRA (EPA #1428, OMB #2050-0078).

Recordkeeping/Disclosure. Respondents are required to maintain records up to three years. Respondents are not required to disclose any information directly to the public.

Petition Submission. EPA issued statements of petition policy and guidance in the Federal Register on 4 February 1987 (52 FR 3479) and on 23 May 1991 (56 FR 23703). Petitioners must submit, in writing, a request to either add or delete a chemical to or from the section 313 list. The petitioner may include in this request evidence that the chemical either meets or does not meet the criteria established for inclusion on the section 313 list. Submission of a petition thus may involve a literature search and compilation and presentation of the findings to the Agency. Petition submission is not an activity that is required of regulated entities.

4 THE INFORMATION COLLECTED--AGENCY ACTIVITIES, COLLECTION METHODOLOGY, AND INFORMATION MANAGEMENT

4(a) Agency Activities

EPA engages in many activities to fulfill the requirements of EPCRA. These activities can be grouped in the following categories which cover what the Agency does to assist the regulated community with compliance, process the data, maintain the database, and make the data available.

- Assistance to Respondents
- Data Management

- Data Processing and Quality Control
- Systems Maintenance and Operation
- Availability of the Data
- List Revisions and Petition Reviews
- Trade Secrecy Reviews

Assistance to Respondents. The Agency has operated a successful outreach program to assist businesses in obtaining and completing both the Form R and Toxic Chemical Release Inventory Certification Statement. A reporting package that is updated annually is distributed directly to all TRI respondents. This package also is made available to potential respondents through Regional office coordinators and the EPA publications distribution center. The package contains detailed instructions. The Agency also produces and distributes to all current submitters a magnetic media software package that allows them to submit reports on computer diskettes. General guidance on estimating releases, as well as industry-specific guidance documentation has been prepared for eighteen different industries.

EPA also has established a training program designed to familiarize Regional personnel with the reporting requirements and to train them in providing technical assistance to respondents. Using that training, the Regions have conducted and continue to conduct numerous workshops each year to explain the reporting requirements to the regulated community. EPA also has established a "Train-the-Trainers" program to teach EPCRA section 313 reporting requirements to private businesses and consultants that wish to provide counsel on section 313 compliance. As previously mentioned, EPA operates a toll-free hotline to answer general questions and direct potential respondents to proper EPA personnel.

EPA has provided guidance on submitting petitions under section 313 to either add chemicals to or delete chemicals from the list. In addition to the guidance, EPA also convenes pre-petition meetings to assist petitioners if they request such assistance.

Data Processing and Quality Control. For those reports submitted on paper, the information is keyed into a database on a PC-based local area network (LAN). Automated data quality checks begin at data entry, including various edit checks and the start of normalization of some of the data fields. Verification of the submitted data begins in this step as well, but emphasis is placed on the identification of the forms that are not completed correctly. If the problem(s) identified prevent further processing of the form, a Notice of Noncompliance is sent to the respondent.

At this stage, EPA also loads onto the LAN data from those facilities that have provided their Form R submission on magnetic media. Many data quality checks are incorporated into the magnetic media reporting package.

Once on the LAN, the data are uploaded to the mainframe, where further data quality checks are made. Included in these operations is continued normalization of name fields, such as

county names, insertion of missing latitude and longitude coordinates (based on a zip-code centroid), and checks of problems with linkages of data for a facility. Verification of the submitted data continues in this step and includes the sending of letters that contain all the release and transfer information submitted to EPA to respondent facilities for verification.

Ensuring the accuracy of the release and transfer estimates is an on-going effort, and includes comparison across reporting years as well as use of data and evaluations based on site (facility) visits. Also at this stage of data processing, Notices of Technical Error are sent to the respondents identifying any errors and requesting corrections.

Systems Maintenance and Operation. The database is maintained on an EPA mainframe, from which the data are available to EPA and the states. Tapes also are "cut" from the EPA mainframe and provided to NLM and other public access vendors. Maintaining the database on the mainframe requires the programming and operations necessary to support the system.

Availability of the Data - Providing Public Access. In accordance with the statute, EPA provides access to the TRI by any interested party on a cost-reimbursable basis. The TRI is available to the public through NLM. To further enhance use of the database, EPA has developed and provided PC-based software that convert data downloaded from TOXNET into a PC database format.

In addition to the public database, EPA also has made the TRI information available through a variety of other electronic and non-electronic means. EPA prepares a national report which describes the annual data received and presents extensive summary information in text, charts, and graphics. Magnetic tapes of the entire database and PC diskettes of abbreviated data for individual states in dBASE and Lotus formats are available for purchase through GPO and NTIS. EPA also has made a Compact Disc Read-Only-Memory (CD-ROM) version of the database available to those libraries. Finally, citizens can contact their state or the national TRI reporting center for information and copies of individual forms submitted by facilities.

List Revisions and Petition Reviews. The list of toxic chemicals subject to reporting under section 313 of EPCRA is not static. The list can be modified by Agency-initiated reviews of chemicals or by public petition. If a listing petition is submitted by a State governor, then EPA must respond within 180 days by either publishing an explanation of denial or granting the petition. If EPA does not respond within 180 days the chemicals are automatically added to the toxic chemical list. Once a petition is received, EPA begins an intensive review that includes chemistry and toxicity analyses of the chemical or chemicals. Depending on the toxicity of the chemical or chemicals, EPA's review also may include exposure, economic, and engineering analyses. If the chemical meets the criteria for addition to the list, it is added or maintained on the list. If the criteria is not met, then the chemical is removed from the list. The criteria for inclusion on the list are stated in section 313(d)(2): the chemical is known to or can reasonably be anticipated to cause significant adverse acute human health effects; cancer or teratogenic effects; serious or irreversible reproductive dysfunctions, neurological disorders, heritable genetic

mutations, or other chronic health effects; or a significant adverse effect on the environment because of its toxicity, its toxicity and persistence in the environment, or its toxicity and tendency to bioaccumulate in the environment.

Since the list was first published, there have been 332 additions (including 6 chemical categories) to and 19 deletions or modifications (including modifications to two chemical categories) from it, and several delisting petitions are pending. 291 of these additions (including 4 chemical categories) are the result of Agency-initiated rulemakings. Four of the deletions or modification, including acetone, sodium hydroxide (solution), sodium sulfate (solution), and sulfuric acid (non-aersol), were high production volume chemicals, which greatly reduced the reporting burden on industry. In general, previous petitions have been submitted for single chemicals, however, a recent increase in petitions for groups of chemicals has occurred. EPA may list the chemicals as a category or add only those individual chemicals which meet the section 313(d)(2) criteria.

Trade Secrecy Reviews. When a respondent claims a chemical identity as a trade secret, a substantiation must be included. Respondents often claim trade secret status on Form R, but do not provide substantiation. In those cases, EPA must review the claim and contact the respondent to determine the true intent. In many cases, the trade secret claim was not intended and no substantiation is made. Trade Secrecy reviews, including the costs to EPA, are discussed in greater detail in the ICR for the Trade Secrecy Rule for EPCRA (EPA #1428, OMB #2050-0078).

4(b) Collection Methodology and Management

EPA continues to encourage the use of submissions on magnetic media. The use of magnetic media does not necessarily reduce the reporting burden on industry, although EPA believes that it is so: it is intended to reduce both the cost and the time required to enter, process, and make available the data. Submission by magnetic media also improves data quality because of automatic checks that highlight errors or omitted data. EPA intends to modify the current reporting program in order to make the certification statement reportable on magnetic media. For the 1994 reporting year, over 60% of all reports were submitted on magnetic media.

4(c) Small Entity Flexibility

The statute provides that facilities with less than 10 full-time employees (or equivalent) are not required to report. In addition, EPA has taken several steps to minimize the burden for small businesses. A range reporting option was added to the February 16, 1988 final rule (53 FR 4500) that codified the EPCRA section 313 reporting requirements. Range reporting was the preferred option from the Regulatory Flexibility Act analysis to provide burden reduction for small businesses. It was retained as a result of a review conducted in association with the last ICR clearance. Range reporting provides an option for releases of less than 1,000 pounds to be recorded as a code representing one of three ranges, 1 to 10 pounds, 11 to 499 pounds, or 500 to

999 pounds, rather than as a specific estimate of the release amount. The benefit is not, however, limited to small businesses.

In addition, in response to a petition from the Small Business Administration, EPA has promulgated the alternate threshold (November 30, 1994, 59 FR 61488) discussed above. Although any reporting facility meeting the criteria may use the alternate threshold, it is thought that this alternate threshold will be most advantageous to small entities.

EPA has considered a number of alternatives to reduce to the extent practicable and appropriate the burden of reporting on small entities. The alternatives examined include:

- expanding eligibility for the alternate threshold;
- extending the deadline for the first year of reporting;
- requiring only certain sections of the Form R to be completed;
- expanding the range reporting option beyond the current 1,000 pound limit;
- requiring reporting of throughput only; and
- raising the employee threshold in order to exempt more small businesses from reporting.

More information on these alternatives is included in EPA's "Economic Analysis of the Proposed Rule to Add Certain Industries to EPCRA Section 313".

4(d) Collection Schedule

The following outlines respondent and Agency activities across consecutive reporting years.

Industry - All Years

- Collect data on releases, transfers, and treatment as necessary to complete Form R or Toxic Chemical Release Certification Statement for submission in the following year.

- Summarize and prepare data from previous year as needed for completion of Form R or Toxic Chemical Release Certification Statement, complete appropriate form and submit to EPA and appropriate State agency by July 1 of that year.

EPA - First Year

- Form Rs and Toxic Chemical Release Inventory Certification Statement are received. Entry and quality checking of forms and data is started and completed.

- Preliminary data analysis is started.

- Layout drafts of National Report are started.

EPA- Second Year

- The data undergoes final quality checking. Data analysis is continued and the data are prepared for release.

- The data are made available to the public through NLM and other means.

The following outlines the activities necessary to collect and process TRI data during any given year.

1st Quarter

- **Industry**--Data obtained from previous calendar year is collected and processed to complete the Form R.

- **EPA**--Data from the previous reporting year is quality checked, analyzed, and prepared for release.

2nd Quarter

- **EPA**--Data entry and quality checking of forms submitted before the July 1 deadline begins. Data from the previous reporting year is made available to the public through NLM and other means.

3rd Quarter

- **Industry**--Reports due to EPA and the States (July 1)

- **EPA**--Data entry continues (majority of forms received by July). Data quality checks are started. Data analysis of data from the previous reporting year continues and drafts of reports are prepared.

4th Quarter

- **EPA**--Data entry and quality checking continue. Data analyses and reports are made available if not already completed in the 3rd Quarter.

5 NONDUPLICATION, CONSULTATIONS, AND OTHER COLLECTION CRITERIA

5(a) Nonduplication

The basic information requested on the Form R is required to be reported by law. Other statutes, however, also require the reporting of information about releases of chemicals to the environment, creating the possibility of overlap or duplication of reporting requirements. EPCRA anticipates some overlap and provides that respondents may use readily available data collected pursuant to other provisions of law to complete the section 313 reports. However, currently available non-TRI sources of information cannot provide readily accessible release and transfer, inventory, or pollution prevention data with the scope, level of detail, and chemical coverage as data currently included in TRI.

The TRI contains information on releases, transfers, inventories, and pollution prevention activities for approximately 650 toxic chemicals and chemical categories. Although there are no national databases that are comparable to the whole of TRI, several data sources exist which contain media-specific data on releases and transfers. In theory, information from these databases could be combined to form an analog of release and transfer data contained in TRI. However, this undertaking is extremely difficult at best, and may be impossible given the currently available data sources (see Figure 1 below). Difficulties replicating TRI data using these alternative sources include differences in chemical coverage, facility coverage, reporting frequencies, and perhaps most importantly, the integration of data from various sources at a facility level.

For example, the AIRS Facility Subsystem (AFS) contains emissions, compliance, and enforcement data on air pollution point sources emitting any of the so-called criteria pollutants at levels above defined thresholds. AFS data are not a good substitute for TRI air emissions data because of the lack of reporting requirements for most air toxics and the lack of rigid reporting schedules. Of the 267 TRI chemicals with reported releases to air in 1994, only 104 (39%) can be estimated using AFS data.[2,3] And there is no requirement for states to report emissions of Hazardous Air Pollutants (HAPs) to AFS. A number of states and regional agencies do maintain their own air emissions inventories, including California, and the Great Lakes states. Difficulties replicating TRI data include variations in the types of data collected, and the fact that only some states maintain these types of inventories.

---

[2] It is important to note that just because a particular chemical may be reportable under both TRI and another regulation does not mean that the same facilities are reporting that chemical to both systems.

[3] EPA promulgated the addition of over 280 chemicals and chemical categories on November 30, 1994. These newly added chemicals are first reportable for 1995. The statutory deadline for reporting is July 1; however, EPA has extended the July 1, 1996 deadline to August 1, 1996 (61 FR 2722).

FIGURE 1
MAJOR RELEASE AND TRANSFER DATABASES

Data source	Media and chemical coverage[4]	Relevant releases statistics available	Ease of database substitution for TRI data[5]
Aerometric Information Retrieval System (AIRS), Facility Subsystem (AFS)	Contains annual emissions of six criteria air pollutants for facilities above reporting thresholds. Also contains limited information on toxics.	Total annual releases; average daily releases in non-attainment areas.	Limited toxics data due to submission being voluntary.
Permit Compliance System (PCS)	Contains monthly discharge monitoring data and flow rates for major sources of water pollutants.	Contains concentration data; total annual releases can be calculated; average daily releases, maximum "moment" if continuous monitoring.	Only includes chemicals for which a discharge limit has been set. Difficult to link between PCS parameters and CAS #; very limited monitoring data for minor dischargers.
Biennial Reporting System (BRS)	Contains waste volumes by RCRA waste code reported biennially.	Total annual off-site transfers of hazardous waste for land disposal; total annual releases to POTW.	Many RCRA waste codes are not specific to an individual CAS #. Quantities of chemicals in waste can not be determined. Portion of waste stream matching each waste code can not be determined.

Under RCRA, generators, treaters, storers, and disposers of hazardous waste are required to submit reports to the Biennial Reporting System (BRS) every two years. BRS tracks trends in

[4] For additional detailed information on chemical coverage of TRI, AFS, BRS, and PCS, please refer to Attachments D-1 and D-2 at the end of this document.

[5] "Ease of substitution" refers only to the potential of the information in the database to substitute for TRI reporting. It does not imply that the database is not adequate for the purposes for which it was designed.

hazardous waste generation and management, and contains information on the quantity and nature of hazardous waste treated and disposed. BRS cannot duplicate the information contained within TRI, as BRS waste codes do not necessarily map to unique chemicals, quantities of specific wastes in the wastestream cannot be determined, and reporting is less frequent than that of TRI. Of the 258 TRI chemicals with reported releases to land, underground injection, or off-site transfers in 1994, only 158 (61%) can be tracked by BRS.

The Permit Compliance System (PCS) tracks permit compliance and enforcement status of facilities that discharge to surface waters. PCS data are not a suitable substitute for TRI data due to the fact that PCS is a permit tracking system and not a loadings system. In other words, PCS typically tracks pollutant concentrations, and not total releases. This difference in purpose results in differences which are difficult to resolve in the amount and types of data collected. Furthermore, PCS does not contain all TRI chemicals. Of the 205 TRI chemicals with reported releases to surface water in 1994, only 131 (64%) of them are tracked by one or more facilities in PCS.

TRI also contains inventory data, which makes up a small portion of the total data. The most likely alternatives for TRI inventory data are the Tier I/II data reported under EPCRA §312. Under EPCRA §312, regulated facilities must submit annual inventory reports of hazardous chemicals stored on site to the state. Tier I requires reporting on broad categories of physical hazards, while Tier II requires chemical specific information by CAS number. The information contained on the Tier I and Tier II reports surpasses the chemical inventory data requested on TRI Form R in terms of the chemicals covered and level of detail. However, there are significant difficulties with respect to public access of Tier I and Tier II data, including the lack of a national integrated database.

In addition to release/transfer and inventory data, TRI also collects pollution prevention data from reporting facilities. Pollution prevention data somewhat analogous to data in TRI can be found in BRS (described briefly above) and databases administered by two state environmental agencies. While BRS provides both qualitative and quantitative pollution prevention information, it does not have the facility or chemical coverage necessary to replace TRI pollution prevention reporting requirements. BRS contains data on generation, transfer, and management of hazardous wastes, while pollution prevention data contained in TRI includes information on wastes or process by-products in all production phases and media. In addition, states have come to rely on the pollution prevention data provided to them by TRI. As a result, no state program collects all of the pollution prevention data currently available in TRI.

What follows is a more detailed discussion of the several information sources that currently provide pollutant release and transfer data. The analysis is broken down by specific type of data collected under TRI.

Fugitive/Non-Point Air Emissions and Stack/Point Air Emissions

Fugitive (non-point) air emissions and stack (point) air emissions are reported under Sections 5.1 and 5.2, respectively, of TRI Reporting Form R. (Fugitive air emissions are defined as all releases of air pollutants to the air that are not released through stacks, vents, ducts, pipes, or any other confined air stream. Stack air emissions are defined as all releases of air pollutants that are released through stacks, vents, ducts, pipes, or any other confined air stream.) In the paragraphs below, several alternative data sources are compared and contrasted to TRI. Key criteria considered in comparing the alternative data sources with TRI include: chemical coverage, industry/facility coverage, release statistics, and public accessibility to the data.

AIRS Facility Subsystem (AFS)

The Aerometric Information Retrieval System (AIRS) is a computer-based repository of information on airborne pollution in the United States and various World Health Organization (WHO) member countries. AIRS is comprised of four major databases - Air Quality (AQ), AIRS Facility Subsystem (AFS), Area/Mobile Source (AMS), Geo-Common (GCS) subsystems, and a mapping utility for all AIRS data called AIRS Graphics (AG). Each subsystem addresses different, but connected, aspects of the Clean Air Act regulatory requirements. AIRS is administered by EPA's Office of Air and Radiation (OAR).

The AIRS Facility Subsystem (AFS) is the database component of AIRS which tracks air emissions from industrial plants. AFS contains emissions, compliance, and enforcement data on air pollution point sources regulated by EPA, state and local environmental regulatory agencies.

OAR manages EPA programs to improve air quality in areas where the current quality is unacceptable and to prevent deterioration in areas where the air is relatively free of contamination. To help accomplish this task, OAR uses AFS to track emissions of pollutants that have been proven to be detrimental to public health, known as *criteria pollutants*, as defined in the national ambient air quality standards. The seven criteria pollutants which states must report to AFS include: particulate matter less than 10 microns in size (PM10), carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead (Pb), reactive volatile organic compounds (VOCs), and ozone. States are required to report ambient air quality data on a quarterly basis, and point source data on a yearly basis, for the criteria pollutants listed. In addition, states may choose to use the AIRS system to store data on a wide variety of other pollutants and related variables.

Data in AFS is organized into four logical levels: plant, stack, point, and segment. The plant is a facility represented by its physical location, and defined by property boundaries. A stack or vent is where emissions are introduced into the atmosphere. An emission point is a physical piece of equipment or a process that produced emissions. Finally, a segment is a component of a point process (such as fuel combustion) that is used in the computation of emissions. (U.S. EPA, 1995a)

At the facility level, sources with air emissions greater than 1,000 tons per year (tpy) for CO, 100 tpy for VOC, PM-10, SO_x, or $NO_{x,}$ or 5 tpy for lead must report actual or estimated annual emissions data. At the point level, such as a stack or any single piece of equipment or process where emissions occur, sources with air emissions greater than 25 tpy for VOC, PM-10, SO_x, or NO_x, 250 tpy for CO, and 5 tpy for lead must report actual or estimated annual emissions data. AFS data are utilized by states to prepare State Implementation Plans to comply with regulatory programs and by EPA as an input for the estimation of total national emissions. Data for over 100,000 point source facilities are stored in AFS.

Compliance and enforcement data are updated by states and EPA based on the data submitted by facilities. Compliance data for these plants may be recorded for the plant as a whole or for a specific point within the plant. Emissions estimates are available for facilities satisfying the emissions thresholds described above. States also are required to report emissions data for point sources which emit below the 100 ton threshold in areas where air quality does not meet federal standards (non-attainment areas).

Fugitive air emissions data are not specifically flagged within AFS. It may be possible, however, to generate fugitive emissions estimates for pollutants included within AFS by determining all Source Classification Codes (SCCs) generating fugitive air emissions, and then totaling emissions (Kleeman, 1995). SCCs are eight-character codes which represent specific processes or functions within a source category. For example, SCC 1-02-005-01 corresponds to the burning of distillate oil in an industrial boiler. SCCs allow proper identification of processes as well as proper calculation of emissions when applying AP-42 emission factors.[6] Because SCC codes are not designed to distinguish stack level emissions from fugitive air emissions, such an effort would require a review of all coded industrial processes in order to identify those generating fugitive emissions.

As described in more detail in following sections, AFS data are not good substitutes for TRI stack or fugitive emissions data. Problems include the lack of reporting requirements for most air toxics, and the lack of rigid reporting schedules.

Chemical coverage: States are required to report to EPA annual emissions estimates for point sources emitting greater than or equal to threshold quantities of the *criteria pollutants* (40 CFR §51: 321-326): PM10, carbon monoxide, sulfur dioxide, nitrogen dioxide, lead, and reactive

---

[6] AP-42 Emission Factors, available from the Factor Information Retrieval (FIRE) System, and emission factors in general, are representative values that attempt to relate the quantity of a pollutant released with a given activity associated with the release of that pollutant. Emission factors are typically expressed as the weight of pollutant divided by a unit weight, volume, distance, or duration of the activity emitting the pollutant (EPA, 1995b). Generally, AP-42 emission factors are simply averages of available emissions rates that can be used to facilitate the estimation of air emissions and are sometimes used by facilities to estimate TRI releases and transfers. A difficulty with using emissions factors is that there is a lack of facility-specific throughput data (production or activity), without which estimates cannot be made. Another difficulty is that the factors are averages and do not account for the variations between facilities.

volatile organic compounds (VOC). Currently, there is no requirement for states to report hazardous air pollutants (HAPs) to AFS, although some states with toxics reporting requirements that exceed federal requirements may upload their air toxics information to AFS.[7] At this time, however, no research has been undertaken to determine which states report which HAPs. There also are no statistics on the frequency of state HAP reporting, which facilities report, or the reporting thresholds.

Because data on toxic releases in AFS are sparse, emissions can be estimated (that is, modeled) using a technique called "speciation." Speciation involves multiplying reported emissions of particulate matter (PM) and VOCs by fractions representing various compounds, according to a profile specific to the emission source. OAQPS's Clearinghouse for Information on Emission Factors (CHIEF) electronic bulletin board stores a PC-based speciation application called SPECIATE, with apportionment factors for 691 organic chemicals and 110 particulates in about 700 total profiles. However, only 112 chemicals out of the total 627 TRI chemicals (18%) can be estimated by AFS. In addition, only 104 TRI chemicals out of the total 267 with reported releases to air (39%) in 1994 can be estimated using SPECIATE.

When there is no option of obtaining actual sampling data, speciated data can provide useful estimates. However, there are significant limitations to the accuracy and reliability of speciation data. The speciation profiles contained in SPECIATE were developed from field sampling, engineering judgements, and other indirect techniques. The weight percentages and number of chemicals in a given profile may be heavily influenced by the particular analytical and sampling methods used to develop the profile. A bulletin posted to EPA's CHIEF bulletin board reads that "[SPECIATE] profiles were not developed for, and are not recommended for use in developing toxics inventories by speciating VOC or PM emission estimates." (U.S. EPA, 1996)

Another shortcoming of SPECIATE involves the assignment of profiles for all SCCs in AIRS. Ideally, each SCC in AIRS would have a unique profile to represent its speciation characteristics; however, there are far more SCCs than available profiles. Therefore, those categories which are not associated with original profiles are assigned profiles based on engineering judgement (Radian, 1993).

Industry/facility coverage: Because facilities are included in AFS on the basis of their emissions levels, there are no SIC or industry limitations imposed on the list of AFS-covered facilities. In contrast, TRI currently only requests data from the manufacturing SIC codes (20-39), thereby excluding many other industries. It is important to note, however, that emissions thresholds play an important role in determining which facilities are covered. Facilities are covered under AFS only if they release multiple tons of criteria pollutants annually. Smaller HAP emitters that release small amounts of criteria pollutants may therefore be completely exempted from reporting to AFS. TRI, on the other hand, employs thresholds of 10,000 and 25,000 pounds

[7] Hazardous Air Pollutants (HAPs) are defined in Section 112 of the Clean Air Act (CAA). Section 112 lists 189 HAPs, of which 181 also are listed in TRI.

per year, depending on how a particular chemical is used, processed, or manufactured. In addition to this use threshold, TRI also exempts facilities with less than the equivalent of ten full time employees.

Release statistics/reporting frequency: EPA requests that states upload information to AFS on an annual basis. However, because there are no defined reporting schedules and no real penalties for not reporting, in practice there is "rolling receipt" of information, with some states failing to report for various reasons in some years. For example, because of inter-database data compatibility issues that have not yet been completely resolved, the state of California has not reported to AFS since 1990 (Goodenow, 1995). Although AFS notes that most states report regularly, and some facility-specific emissions data are available from AFS across all reporting years (Wakefield, 1995), the looseness of the reporting structure makes comparisons across states, industry, facilities, or years difficult.

Accessibility: AFS data are accessible through the EPA Mainframe and to a limited degree, through AIRS Executive, a self-contained updatable and downloadable program which digests AIRS data. There are no access restrictions for AIRS Executive which is available through the EPA World Wide Web site (http://www.epa.gov/airs/aexec.html). The EPA Mainframe, however, is not accessible by the general public.

State Air Emissions Inventories

Several states and regional agencies maintain their own air emissions inventories, including the inventory set up under California's "Hot Spots" Information and Assessment Act (Assembly Bill 2588), and the Great Lakes Regional Air Toxics Emissions Inventory. Approximately half the states have implemented some kind of air toxics reporting system (Pope, 1995). However, the amount of data as well as the types of data elements collected varies widely from state to state. The Great Lakes inventory merits special attention because other states and countries (including Louisiana; Texas; Ontario, Canada; and Mexico) use it as a model for their own inventories. A number of other states have active programs or are in the process of developing them. A number of other states have active programs or are in the process of developing them. Two are discussed below in terms of their coverage and accessibility characteristics.

Chemical coverage: Chemicals covered under state and regional inventories vary widely in the number of chemicals covered, data elements required, and reporting thresholds used. While some inventories collect detailed, facility level information on many chemicals, others are designed only to track very specific pollutants for specific applications. For example:

- California's Air Toxics "Hot Spots" Act (AB 2588) mandates emissions reporting for over 700 substances which pose chronic or acute health threats when present in the air. Of the 700, 354 also are listed under TRI. Facilities are subject to the requirements of AB 2588 if they manufacture, formulate, use, or release any of the listed substances in quantities above 10 tons annually. Other applicability criteria, such as being listed on any California

Air District toxics survey, inventory or report, capture additional facilities. Facilities are required to prepare detailed air toxics emissions inventory plans and emission inventory reports, which must be updated every four years (CARB, undated).

- When implemented, the Great Lakes Regional Air Toxics Emissions Inventory will track point and area source emissions for 49 toxic chemicals that have been identified as "significant contributors to the contamination of the Great Lakes." Of the 49 chemicals, 33 also are contained in the TRI database. Designed to track emissions for the region, the Inventory will rely on emissions factors for its data, and will not require emissions reporting by facilities.

Industry/facility coverage: States often develop their own toxics inventories due to perceived gaps in TRI's industry coverage. For example:

- The Great Lakes Regional Air Toxics Emissions Inventory will not require emissions reporting by industry. Rather, state agencies will use best available emission factors (FIRE) or source-specific emission factors and throughput information to estimate emissions from a much larger catalog of sources than TRI, including area sources such as dry cleaners, asphalt plants, and wood stoves (Ratza, 1995).

Release statistics/reporting frequency: The type of data collected and data collection frequency among states and regions also varies widely. For example:

- Every four years, California collects detailed release inventories of over 700 state identified HAPs from all facilities which meet the "Hot Spots" Act applicability requirements (CARB, undated).

- The Great Lakes inventory, on the other hand, does not collect emissions information from industry, but instead produces estimates for point sources using emissions factors and throughput data (GLIN, 1996).

Accessibility: Because each state or region which maintains a HAPs database does so more or less independently of the federal government, there currently is no central repository of this information. Because the states and regions also use different database formats and applications to maintain their data, building a multi-state/region air emissions inventory from the existing databases would be a challenging task. However, OAQPS is in the process of developing a national toxics inventory database, which will utilize a combination of TRI data and state, regional, & local databases (Pope, 1995).

Another potential partial solution to the data compatibility problem, once it is fully implemented, is the Great Lakes Regional Air Toxics Emissions Inventory, which will be maintained using the Regional Air Pollutant Inventory Development System (RAPIDS). According to the Great Lakes Commission, RAPIDS is the "first-ever multi-state pollutant

emissions estimation software," and handles sophisticated relational data management as well as emissions estimations.

Currently, the Great Lakes Commission is coordinating Phase Three of the development of the Great Lakes Regional Air Toxics Emission Inventory, which involves the compilation of full statewide inventories for the eight-state Great Lakes region. According to the Great Lakes Commission, they have developed the *Air Toxics Emissions Inventory Protocol for the Great Lakes States*, which will guide "each state's efforts to identify key sources and estimate yearly emissions for the target toxic air pollutants by ensuring consistency across the region." (GLIN, 1996) In addition to the Great Lakes states, there are several other states that are considering using the RAPIDS database as a model for their own. Their adoption of the RAPIDS standard could lead to enhanced data compatibility among these states.

Various states and regions employ different methods to make their information available. For example, under the "Hot Spots" program, the California Air Resources Board is required to make the collected emissions data available to the public through health risk assessments, facility ranking, and annual reports. RAPIDS will take full advantage of the Internet, and will be a versatile data management system, allowing states to build on it and tailor it to their own needs. There are plans to make Great Lakes Inventory data and reports available on the World Wide Web.

Title V Part 70 Operating Permits

Under the 1990 Clean Air Act Amendments (CAAA), facilities designated as "major sources" and facilities otherwise subject to Section 112 and Title IV must apply for a Title V Part 70 Operating Permit. Although a facility can meet the criteria for a major source in any of several ways, particularly relevant are those facilities which attain major source status by emitting 10 tons per year (tpy) or more of any HAP or 25 tpy total combined HAPs. As part of the application for a Title V permit, some facilities may have to report emissions of air toxics (see discussion on chemical coverage below). There is significant overlap between the 189 HAPs regulated under the CAA and the 600+ chemicals in TRI. Compared to TRI, however, the information provided in the permit applications has very different characteristics in terms of chemical coverage, completeness, and accessibility.

Chemical coverage: Title V requires that all permit applicants provide qualitative descriptions of their emissions, including all criteria pollutants and all 189 toxic pollutants. Quantitative emissions estimates are usually required by the permitting authorities only when more information is needed to resolve a dispute over applicable requirements, such as whether or not the facility should be classified as a major source. In the event that there is no dispute, no emissions estimates are required. In situations where estimates are required, facilities are allowed to use "available information," which includes EPA emission factors documents, "reasonable engineering projections," as well as test data. EPA's policy, as outlined in the "White Paper for Streamlined Development of Part 70 Permit Applications," is to request just enough information

to convince the permitting authorities that the facility meets all emissions requirements. According to the White Paper, "emissions information for these purposes does not always need to be detailed or precise." (U.S. EPA, 1995c) For most pollutants, it is not likely that Title V Part 70 emissions data could substitute for TRI release reporting.

Industry/facility coverage: There are no SIC or industry limitations for major facilities. For non-major sources, decisions on permit applicability are made on a source category by source category basis. Decisions are currently being made on Title V Part 70 permit requirements for nonmajor sources as to which source categories will be exempted, deferred, or required to obtain permits (Seitz, 1995). However, as stated above in the chemical coverage discussion, actual emissions estimates are required only when attempting to settle a dispute over facility status or other applicable requirements. Therefore, the majority of Title V permit applicants are not required to furnish any quantitative data. Title V's facility coverage is likely to be different from TRI's facility coverage, due to the differences in applicability criteria between the two systems. . While TRI has a manufacture, process, or use threshold for toxic chemicals, Title V has applicability criteria based on HAPs emissions (see above).

Release statistics/reporting frequency: Emissions information is required at the time of permit application, renewal, and modification. Since permits are typically renewed every five years, most facilities will report their information every five years (Swanson, 1995). Other possible situations for emissions information updates include new applicable requirements not requiring permit modifications, and changed compliance status of facilities. Even if the information was as complete as TRI, the duration between reports is much longer than the one year timespan between TRI reports.

Accessibility: The U.S. EPA does not maintain a central inventory of the emissions data contained in the permit applications (Southerland, 1995). This information is kept at the state and regional levels, making it difficult to access, especially in comparison to TRI.

Summary of Availability of Fugitive/Non-Point and Stack/Point Air Emissions Data

None of the data sources described above can be used in place of TRI fugitive or stack emissions data. Although AFS provides good data on criteria pollutants, only one criteria pollutant (lead) is reportable as a discrete chemical substance on both AFS and TRI. Further, AFS HAP release information is not a good substitute for TRI because data for EPCRA Section 313 toxic chemicals are generally unavailable, and speciation cannot reliably generate accurate facility-specific HAP emissions estimates. In addition, fugitive emissions are not specifically flagged within AFS. Some state air emissions inventories such as California's may collect air emissions information that is as complete or even more detailed than TRI. However, not all states maintain inventories, and there are still many unresolved data compatibility and accessibility issues. The Great Lakes inventory is limited in its geographic coverage as well as the number of chemicals it contains, uses different data collection techniques than TRI, and relies on state-generated estimates in lieu of facility reported release data. Emissions information on air toxics

contained within Title V Permit documents also are not a substitute for TRI emissions in terms of chemical coverage, frequency of reporting, or accessibility.

Direct Discharges to Receiving Streams or Water Bodies

Form R requires that facilities report total direct discharges to receiving streams or water bodies. Releases are reported in pounds per year and include the name of the receiving stream or water body. The following section compares and contrasts the Permit Compliance System (PCS) with TRI to determine whether it could be used as a substitute for TRI chemical release data. In comparing and contrasting PCS with TRI, several variables are considered. Key criteria include: chemical coverage, industry and facility coverage, release statistics, reporting frequency, and accessibility.

The Permit Compliance System (PCS) tracks permit compliance and enforcement status of facilities regulated by the National Pollutant Discharge Elimination System (NPDES) under the Clean Water Act (CWA) and is managed by EPA's Office of Enforcement and Compliance Assurance (OECA). PCS tracks all point source discharges to surface waters, but does not include indirect releases such as discharges to Publicly Owned Treatment Works (POTWs). Permits are classified as major or minor based on facility discharge characteristics such as toxic pollutant potential and flow volume. Facilities are classified as "major" based upon a scoring system which considers toxic pollutant potential, flow/streamflow volume, conventional pollutant loading, public health impacts, water quality factors, and proximity to near coastal waters.

Major dischargers report compliance with their NPDES permit limits through Discharge Monitoring Reports (DMRs). DMRs are generally submitted on a monthly basis to state and regional EPA, providing detailed information on reported measurement values for those chemicals regulated within their NPDES permit. Data collected via DMRs are entered into PCS, including: concentration and quantity values for regulated pollutants, and the type of permit violation (if any). EPA uses PCS to produce the Quarterly Non-Compliance Report (QNCR), a public document listing NPDES permit violations. EPA requires monitoring data only for those permits classified as major. For minor facilities the database contains only general facility-level information. It is important to note, however, that All NPDES permittees (both major and minor) are required to file DMRs with their State or Regional NPDES authorities. Therefore, monitoring data for minor facilities are available from the files of these permitting authorities, which are open to the public. Data for minor facilities are not maintained through the national database.

There are several differences between TRI and PCS stemming primarily from the divergent purposes of the two systems. Unlike TRI, PCS is a permit tracking system rather than a toxic pollutant loadings system. The differing data needs of these two types of systems make it problematic to transfer information from one to the other. For example, although EPA requires the reporting of PCS data in mass units unless it is impracticable to do so, the fact that PCS monitoring data can be reported in either mass units or as concentrations can make comparing the

releases of two facilities a complicated issue. Data in units of concentration data can be converted to mass units only if flow data also exist.

Chemical coverage: A facility's permit record may not include all pollutants actually being discharged by the facility. The monitoring data available through PCS for major dischargers include only those chemicals for which a monitoring requirement has been set in the permit. Federal effluent guidelines exist for many major industries and determine chemicals for which monitoring is required. However, the guidelines may not consider the same chemicals across industries. Therefore, two facilities in different industries with similar chemical releases may not necessarily both report the same set of chemicals to PCS. Also, for facilities not covered by a Federal effluent guideline, it is left to the discretion of the permit writers to decide which pollutants will be included in the permit, how often monitoring must occur, and which parameters and units of measure are to be used. In addition, only 131 TRI chemicals (out of a total 205 with reported releases to surface water in 1994) were matched to PCS. Out of the 627 total reportable chemicals on the current TRI chemical list, 151 also are reported by at least one PCS facility. It is important to note that the actual number of chemicals with water releases from the expanded list of 627 TRI chemicals will not be known until 1997, when the 1995 TRI data becomes available.

Because NPDES permit discharge limits are written in terms of PCS pollutant parameters, and not CAS numbers, much of the data contained within PCS is not chemical-specific. An example of a non chemical-specific PCS parameter is parameter 00535, Suspended Volatile Solids. It may be difficult to determine the mix of specific chemicals when data are reported using non chemical-specific parameters. In addition, in many cases, multiple parameters are reported for the same chemical, representing different measures of the same chemical. For example, PCS parameter numbers 01049, 01050, and 01051 represent dissolved, suspended, and total lead, respectively. Because there may be several parameters for a single chemical, it becomes difficult to aggregate their masses. Chemical Abstract Service (CAS) registry numbers are not reported for chemical parameters; however, parameters can sometimes be linked to a specific CAS number using an EPA database called SUPERCAS. SUPERCAS is an edited and augmented version of the CAS matching file contained in STORET, an EPA water monitoring data system. All PCS parameters are contained within SUPERCAS, and although SUPERCAS is not updated regularly, the addition of new parameters to PCS is a relatively infrequent event.

Industry/facility coverage: EPA requires monitoring data only from those facilities classified as major dischargers. For minor facilities, the database contains only general facility-level information. While the database tracks about 65,000 active permits, only about ten percent of these are classified as major. A state may choose to submit monitoring data for minor facilities but generally such data are unavailable. Unlike TRI, PCS does not restrict reporting requirements to specific industry groups or exempt facilities with less than the equivalent of ten employees.

Release statistics: The release statistics reported for PCS parameters depend on the permit specifications. Often, releases are reported as concentrations in parts per million (ppm) or milligrams per liter (mg/L), as opposed to units of mass such as pounds per year (lb/yr) or

kilograms per year (kg/yr) (Rubin, 1995). If discharges are reported in mass units, a maximum daily discharge also is reported. The basis for these reported data varies among facilities. For example, a facility may sample its effluent only once per month and still report a monthly maximum discharge. If discharges are reported as concentrations, a minimum, maximum, and average value may be reported, although a significant percentage of dischargers report only a maximum concentration (Rubin, 1995). In general, flow rates are available for converting concentration units to units of mass (i.e., kg/year can be calculated by multiplying mg/L by the annual flow rate), although in some cases the flow rates are not provided.

A complex algorithm is required to estimate annual loadings from PCS data. The algorithm must first identify facilities reporting quantities in pounds or kilograms, favoring mean values over maximum or minimum values. For facilities with no loadings data, monthly concentration data must be linked and multiplied by each month's corresponding flow data, again favoring mean values over maximum and minimum values. Additionally, the algorithm must convert the results to a single unit of measure. PCS facilities report at least 26 different units of measure and 15 units of flow (e.g., gallons, thousands of gallons, and millions of gallons in terms of minutes, hours, days, and years). This step is repeated for each month and summed to produce an annual loadings estimate. If twelve months of data are not available, an average value can be used to produce an annual estimate.

Facility releases may be overestimated for several reasons: 1) facilities that release chemicals below their detection limit (e.g., between 0-6 ppm) will sometimes report releases at the detection limit (e.g., 6 ppm) in order to indicate the likely presence of a chemical; 2) facilities with episodic releases may be required to report releases at their peak level and not an average annual quantity; and 3) Facilities might have multiple monitoring points along the same outfall route, resulting in double counting. Such reporting specifications may be appropriate given the purpose of the NPDES permit; however, PCS data will not always be appropriate for estimating annual pollutant loadings.

Reporting frequency: Discharge Monitoring Reports are generally submitted monthly to State or Regional EPA; therefore, reporting frequency is not a limitation when compared to TRI.

Accessibility: PCS data are accessible through the EPA Mainframe, the ENVIROFACTS database, as well as RTK NET (see Attachment D-3). The EPA Mainframe is not accessible to the general public.

Conclusion of Availability of Data on Direct Discharges to Water

Because PCS is a permit tracking system, and not a pollutant loadings system, it cannot provide a suitable substitute for TRI release data. Within PCS, release data are only available for major facilities, and are reported in terms of PCS parameters, not specific chemicals. These chemical parameters cannot always be easily converted into CAS numbers. In addition, only those chemical parameters actually specified in the facility permit have monitoring requirements.

In some cases, data may be reported in units of concentration rather than units of mass. If flow rates also are reported, concentration data can be used to estimate total releases, although there are several complicating factors in producing such an estimate. As of this writing, the Office of Water and the Office of Enforcement and Compliance Assurance are undertaking a major effort to improve the process through which permits are written and coded into PCS so that loadings can be tracked more accurately and efficiently.

Underground Injection and Land Disposal On-Site

Section 313 requires reporting of on-site surface and subsurface (i.e., underground injection) releases to land. On-site surface releases to land include the following subcategories: landfill, land treatment/application farming, surface impoundment, and other disposal. The Biennial Reporting System (BRS) requires reporting of both underground injection and other on-site releases to land. The following analysis compares and contrasts BRS with TRI to determine whether it can be used as a substitute for TRI underground injection and on-site releases to land data.

Under Section 3002(a)(6) of the Resource Conservation and Recovery Act, facilities that generate an amount of hazardous waste that exceeds a defined threshold are required to submit biennial reports on that waste to EPA (or to state agencies that run RCRA programs). These reports include information on the quantity and nature of hazardous waste, the disposition of all hazardous waste, efforts undertaken to reduce volume and toxicity of waste generated, and the changes in volume and toxicity of waste actually achieved during the year. Facilities which treat, store, or dispose of hazardous wastes must provide information on the methods of treatment, storage or disposal. Data are reported to the states and regions, which then provide it to EPA headquarters. Information is entered into BRS, which is maintained by the Office of Solid Waste and Emergency Response (OSWER).

BRS provides an overview of the progress of the RCRA program through tracking trends in hazardous waste generation and management. Large quantity generators (LQGs) and treatment, storage, and disposal facilities (TSDFs) are required to report every two years. Large quantity generators are defined as facilities that generate 2,200 pounds of total RCRA hazardous waste per month; generate 2.2 pounds of RCRA acute hazardous waste a month, or accumulate this amount during the year; or generate or accumulate more than 220 pounds annually of spill cleanup material contaminated with RCRA acute hazardous waste. BRS contains data for about 23,000 LQGs and 4,000 TSDFs.

There are several important differences between BRS and TRI. Although BRS maintains a large amount of useful data, it nevertheless cannot duplicate the information contained within TRI. Waste codes used in BRS do not necessarily map to unique chemicals, quantities of specific chemicals in a wastestream cannot be determined, and reporting is less frequent than for TRI. As detailed below, for these reasons BRS is not a reasonable substitute for TRI.

Chemical coverage: BRS contains data on hazardous wastes as defined by RCRA. RCRA hazardous waste is designated as either "listed waste" or "characteristic waste". Listed wastes have been identified as hazardous as a result of EPA investigations of particular industries or because EPA has specifically recognized a commercial chemical waste's toxicity. Listed wastes appear in 40 CFR Part 261. Characteristic wastes are determined hazardous because they exhibit one or more of the following "characteristics": ignitability, corrosivity, reactivity, or toxicity.

The primary difficulty with waste codes is that not all waste codes used in BRS reporting map directly to a single, unique chemical. For example, waste code F004 is defined as:

> *The following spent non-halogenated solvents: cresols, cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of ten percent or more (by volume) of one or more of the above non-halogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.*

Listed wastes that are categorized as non-specific source waste (the F wastes, such as F004 defined above), specific source wastes (the K wastes), and three of the characteristic waste categories (D001, D002, and D003) cannot be matched to a specific chemical. Listed wastes categorized as commercial chemical products (the P and U wastes), and characteristic wastes meeting the toxicity characteristic (D004-D043) each may represent a single, unique chemical, but they also may represent a mixture of various materials of which the identified chemical is but a small proportion. Using the assumption that these P, U, and D004-D-43 wastes do represent a single, unique chemical, then a total of 158 of the 258 TRI chemicals with reported releases to land, underground injection, or off-site transfer in 1994 can be mapped directly to RCRA waste codes. Out of the total 627 chemicals on the current TRI chemical list, 185 can be mapped to RCRA waste codes. It is important to note that the actual number of chemicals with underground injection and land releases from the expanded list of 627 TRI chemicals will not be known until 1997, when the 1995 TRI data becomes available.

There were 306 million tons of hazardous waste generation reported to BRS in 1991. Figure 2 summarizes the breakdown of BRS reported wastes for 1991. Shaded rows highlight waste categories that represent a single unique chemical (waste codes D004-D043, P, and U), representing only 51.6 percent of the volume of waste generation reported in 1991, although not all of these chemicals are in TRI.

TABLE 2
HAZARDOUS WASTE GENERATION REPORTED TO BRS FOR 1991

Type	Description	Tons (millions)	Percent of Total
Characteristic Waste	D001, D002 or D003, only	37.7	12.3%
	D004 - D043, only	157.3	51.4%
	Multiple characteristic wastes	25.2	8.2%
Listed Waste	F waste or K waste, only	21.3	7.0%
	P waste, only	0.03	0.01%
	U waste, only	0.5	0.2%
	Multiple listed wastes	3.3	1.0%
Both Characteristic and Listed waste		59.4	19.4%
Unknown		1.0	0.4%
Total		305.7	100%
Source: U.S. EPA, 1994.			

Industry/facility coverage: BRS reporting requirements do not require that specific industries or SIC codes report; however, certain waste categories are excluded (40 CFR §§261.4 and 261.3(c)(2)(ii)). For example, the so-called the Bevill exemption (40 CFR §261.4(b)(7)) classifies solid wastes resulting from the extraction, beneficiation, and processing of ores and minerals (including coal, phosphate rock and overburden from the mining of uranium ore) as non-hazardous solid wastes and therefore not subject to BRS reporting.[8] Extraction and beneficiation wastes, plus 20 special mineral processing wastes (listed under 40 CFR §261.4(b)(7)), fall under RCRA Subtitle D classification. TRI does not currently require reporting from the mining industry, although mining is one of the industries being considered for addition to TRI. In addition, emission control wastes, which are prominent wastes within the electric utilities industry, are excluded from BRS reporting. Electric utilities represent an industrial group being considered for addition to TRI. The full list of wastes that are excluded from BRS reporting include the following:

Acid
Agriculture, Irrigation
Cement Kiln Dust
Chromium, Leather Tanning
Drilling Fluid
Emission Control Waste
Fertilizer
Household
Mining
Mining, In situ
Mining, Overburden
Nuclear

[8] As defined under §261.4(b)(7), the beneficiation of ores and minerals includes but is not limited to activities such as the following: crushing, grinding, washing, sizing, drying, solvent extraction, and magnetic separation. For a complete list refer to §261.4(b)(7).

Petroleum-contaminated Media and Debris
Precipitation Runoff
Pulping Liquor
Sewage, Domestic
Sewage, Mixture
Wastewater, Point Source Discharge
Wood, Wood Products

Release statistics: While some of the waste codes used in BRS to identify waste streams may refer to a single, unique chemical (i.e., a specific CAS number), others do not. In addition, a waste stream can be identified by multiple waste codes (e.g., a waste stream can simultaneously be ignitable, contain spent halogenated solvents, contain benzene, etc.). At present, there is no mechanism to apportion the waste stream volume to particular waste codes where multiple codes are reported.

The "mixture rule" and "derived-from" rule were adopted by EPA in 1980 and affect the data reported to BRS.[9] The derived-from rule provides that wastes derived from a listed hazardous waste (such as the ash from incineration of a listed waste) also are deemed hazardous waste. The mixture rule provides generally that any mixture of listed hazardous and non-hazardous waste are considered hazardous waste (although there are important exceptions). RCRA waste streams are often a mixture of one or more toxic chemicals contained at various concentrations in a non-hazardous matrix (e.g., railroad gravel or water). From the reported data, it is not possible to determine the fraction of the entire waste stream that is composed of a particular hazardous chemical. While it is evident that the chemical concentration is adequate to result in the waste stream being defined as hazardous (e.g., the chemical concentration exceeds a certain threshold), no more detailed determination regarding the quantity of the hazardous component released can be drawn.

Reporting frequency: LQGs and TSDFs submit BRS data on a biennial basis. In contrast, TRI reporting occurs on an annual basis.

Accessibility: BRS is accessible through the EPA Mainframe, the ENVIROFACTS database, as well as RTK NET (see Appendix D-2). The EPA Mainframe is not accessible to the general public.

Conclusion on Availability of Data on On-Site Releases to Land

BRS requires individual reporting of underground injections on-site as well as on-site releases to land, as does TRI. However, only half of the waste codes used in BRS can be assumed to identify individual chemicals. In addition, the waste classification system, including the "mixture rule" and "derived-from" rules, results in waste quantities being reported to BRS that do not identify quantities of the individual chemicals. The quantity reported to BRS

[9] The "mixture rule" and the "derived-from" rule were struck down by a 1991 D.C. Circuit Court ruling, but at the court's suggestion, EPA has temporarily reenacted the rules on an interim basis while it develops a new rule to consider them.

represents the quantity of the entire waste stream, and not individual chemicals. Therefore, BRS is not a good substitute for TRI because it is not possible to reliably estimate the releases of a particular toxic chemical to underground injection on-site or releases to land on-site from BRS.

Discharges to a POTW

Section 313 requires that facilities report information on annual discharges to POTWs (Public Owned Treatment Works), including the name and location of the POTW. Although BRS requires some reporting of discharges to POTWs, and PCS allows for reporting of indirect discharges to water, neither system provides information about POTW discharges at TRI's level of detail and completeness.

The Biennial Reporting System (BRS), which contains data from the biennial reports of large quantity generators (LQGs) and treatment, storage and disposal facilities (TSDFs), also requires reporting of some discharges to POTWs. Several limitations associated with BRS data, however, are described above. In addition, hazardous waste, once mixed with domestic sewage and sent to a POTW for treatment, is no longer considered a hazardous waste and is therefore not reported to BRS.

Section 1004(27) of the Resource Conservation and Recovery Act (RCRA) provides that once hazardous waste is discharged directly or indirectly to surface waters, the waste is not subject to BRS reporting. Hazardous waste must be reported only if it receives on-site treatment or is stored in a RCRA permitted unit prior to discharge. If it receives treatment or is stored in an exempt unit (e.g., tanks or totally enclosed treatment units), the waste is reported only if the generator qualifies as a large quantity generator, although the exempt waste is not counted when determining whether a facility is a Large Quantity Generator. TRI provides no exemption for discharges to POTWs which receive no prior treatment.

Although the Permit Compliance System (PCS) includes indirect discharge data elements, PCS does not require reporting of indirect discharges (i.e., discharges that pass through a POTW before entering a waterbody, in contrast to waste discharged directly to a waterbody). States have the option of including indirect discharge data, although very few require that this data be reported (Rubin, 1995). At the time of this writing, indirect discharge data in PCS is extremely limited, and any indirect discharge data that does exist within PCS is subject to the PCS data limitations described above.

Transfers to Other Off-Site Locations

EPCRA Section 313 requires that facilities reporting to TRI report transfers to off-site locations, including the name, location, and RCRA ID number of the off-site location. The Biennial Reporting System (BRS), which contains hazardous waste data from large quantity generators (LQGs) and treatment, storage and disposal facilities (TSDFs), also requires reporting of off-site transfers on its Form GM. Information requested by BRS includes the EPA ID of the

facility to which the waste was shipped, the processes used to treat, recycle, or dispose of the waste at the off-site facility, the off-site availability code, and the total quantity of waste shipped during the report year (see Section 8.3.3 for a more complete description of BRS). BRS also provides data on the volume of hazardous waste shipped off-site for land disposal, a release end-point of relevance to TRI.

There are several difficulties associated with comparing BRS data to TRI data, which are described above in the section covering on-site releases to land.

Review of State Right-to-Know Programs

Under the TRI program, data is submitted to both the U.S. Environmental Protection Agency and to the state or tribal entity in whose jurisdiction the reporting facility is located. With the advent of the federally mandated TRI reporting requirements and the influx of this new information, states with release and transfer reporting requirements of their own changed their programs to minimize program costs to industry and government. In New Jersey, for example, where TRI overlapped with state toxics reporting requirements under the New Jersey Right-To-Know (RTK) program, the RTK reporting requirements were removed to minimize reporting overlap. For more information on state-expanded TRI reporting, a detailed discussion is presented in the "Status of State TRI Programs" section of the TRI Public Data Release, State Fact Sheets. (U.S. EPA, 1995g) This section of the Public Data Release contains a survey administered by the National Conference of State Legislatures to all states on their TRI data use and expansion activities.

As of 1994, only Arizona, Massachusetts, Minnesota, and Wisconsin required or were planning to require expanded state TRI reporting to include non-manufacturing facilities (NCSL, 1995). Under the expanded state requirements, non-manufacturing facilities are required to file Form Rs with the state, but are not required to file with the federal EPA. In addition, some states require facilities to report release information beyond that required by the federal TRI program. Overall, however, the additional data collected by states are far less complete and uniform than would be available under an expanded federal TRI program. Descriptions of how the four state programs differ from federal TRI requirements are given below.

Arizona

In Arizona, any facility defined as a RCRA large quantity generator, regardless of SIC code or number of employees, must determine whether or not it is required to file a Form R with the state Department of Environmental Quality (DEQ). Arizona defines a RCRA large quantity generator as 1) any facility which generates an average of 1 kg/month of acutely hazardous waste as defined in 40 CFR §261, or 2) any facility which generates an average of 1,000 kg/month of hazardous waste in a calendar year exclusive of episodic, accidental, or remediation-related releases or occurrences. Although large quantity generators are not subject to the SIC code restrictions and employee threshold given in the federal TRI program, they are subject to the same

manufacture/process/use thresholds as the federal program. Those large quantity generators that generate below-threshold volumes of TRI chemicals are not required to file Form Rs to the state. Rather, they are required to fill out and send in a non-quantitative questionnaire to indicate that they do not produce above-threshold volumes of any TRI chemical. The information from the questionnaires is entered into the state database. In addition, all facilities that file Form Rs with the state must also file a pollution prevention plan with the DEQ (Quinn, 1995).

The state TRI program provides paper copies of annual TRI data (including facility- and chemical-specific data) to all TRI reporters, to a mailing list of interested individuals, and to public libraries. In addition, the DEQ generates reports using state TRI data on request. The DEQ has found that the data generated by these expanded facility requirements are useful in that they positively verify TRI chemical waste generation by large quantity generators in other SIC codes, including whether or not they generate below-threshold levels of TRI chemicals (Quinn, 1995).

Massachusetts

The Massachusetts Toxics Use Reduction Act of 1989 (TURA) covers facilities in the following SIC codes:

- mining (SIC codes 10-14)
- manufacturing (SIC codes 20-39),
- transportation, communications, utilities (SIC 40, 44-49),
- wholesale trade (SIC 50 and 51),
- personal services (SIC 72),
- business services (SIC 73),
- automotive repair, services, and parking (SIC 75),
- and miscellaneous repair services (SIC 76).

Initially, TURA covered the same facilities and chemicals as the federal TRI program. As of 1995, TURA requirements expanded to include facilities under the above SIC codes which use chemicals that are listed as hazardous substances under §101(14) and §102 of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). (These chemicals are listed at 40 CFR §302.4) Massachusetts otherwise uses the same employee and manufacture/process/use thresholds and chemical list as the federal TRI program (TURI, 1994). Federal facilities are exempt from TURA reporting requirements.

Facilities covered under TURA must file an annual report called a Form S (similar to Form R) which identifies the listed chemicals used during the year in each production process, the percentage reduction of toxic by-products and toxic emissions compared to a defined base year, and the toxic use reduction techniques used to reduce the wastes. Data from the Form Ss are entered into the state Toxics Use Reduction Inventory. In addition, as of 1995, facilities are required to prepare a detailed toxic use reduction plan every two years (MA DEP, 1993).

Minnesota

The 1993 Minnesota Legislature amended the Minnesota Emergency Planning and Community Right-to-Know Act to expand reporting requirements as of reporting year 1993. Facilities in the following SIC codes that meet the employee and chemical usage criteria must report chemical releases and transfers to the Emergency Response Commission:

- metal mining (SIC 10),
- rail transport (SIC 40),
- air transport (SIC 45),
- utilities (SIC 49),
- chemical and allied products (SIC 5161 and 5169),
- plastic materials and shapes (SIC 5162),
- hospitals (SIC 806),
- medical and dental laboratories (SIC 807),
- colleges and universities (SIC 822),
- photo finishing (SIC 7389),
- solvent recovery facilities (SIC 7389),
- testing laboratories (SIC 8734), and
- correctional institutions (SIC 9223).

However, Minnesota specifically exempted fossil fuel combustion for the production of electricity or steam. It maintained current TRI exemptions, definitions, and reporting thresholds, including the alternate reporting threshold for facilities that have total annual reportable amounts that do not exceed 500 lbs per year. Facilities in SIC code 1011 (iron ores) petitioned successfully to be exempt from TRI reporting because they are relatively "clean."

As a result of these exemptions, most facilities that fall under the expanded SIC codes do not have to submit Form R reports. The most significant additional reporting from Minnesota's industry expansion comes from airports due to their use of ethylene glycol.

Wisconsin

As of 1996, Wisconsin will require mining operations (SIC codes 10 through 13) to file Form Rs to the state. In addition, public agencies, public and private educational facilities, and public and private research facilities in Wisconsin are subject to federal TRI reporting requirements. Aside from the additional SIC codes, Wisconsin's Right-To-Know reporting requirements are identical to those of the federal TRI program (NCSL, 1995; BNA, 1995; Dunst, 1995)

Conclusion of Availability of TRI-like Data at the State Level

Although some states have built on the foundation of TRI data with additional state reporting requirements, their data do not have major redundancies with, and therefore are not substitutes for, the current TRI or the proposal to expand TRI. The advent of federally mandated TRI reporting has resulted in many states adopting Form R for their state reporting, and provided a strong impetus for states to remove redundancies in their own reporting in order to minimize costs to facilities in their jurisdictions. Information collected by states above and beyond federal reporting requirements may be available in piecemeal fashion.

Three main limitations preclude the use of state Right-To-Know data as a substitute for the data produced under the proposed federal TRI industry expansion. First, only four out of fifty states currently require or will soon require Form R reporting from non-manufacturing facilities. Second, the data required varies among these states, and is not always available electronically. Finally, as is true of other state reporting programs, the level of effort required for users to compile Form R data across a number of states is prohibitive. For these reasons, state Right-to-Know programs do not represent an adequate alternative to the data which would be available under the proposed federal TRI industry expansion.

Inventory Data

For each listed toxic chemical, a regulated facility must complete data element 4.1 of Part II of Form R, which asks for the "Maximum Amount of the Toxic Chemical On-Site at Any Time During the Calendar Year." Maximum amounts (in pounds) are reported in ranges that increase by powers of ten. Alternative sources of "maximum amount on site" chemical inventory data include EPCRA Section 312 Tier I and II reports.

EPCRA (§311-312) requires that states establish plans for local chemical emergency preparedness and that inventory information on hazardous chemicals be reported by facilities to state and local authorities. "Hazardous chemicals" are defined under the Occupational Safety and Hazard Administration's (OSHA) requirements -- essentially any chemical that poses physical or health hazards. The relevant regulations are detailed in 40 CFR §370. Data elements similar to both TRI and Tier I/II reports make EPCRA Tier I/II the best candidate for an alternative source of TRI "maximum amount on site" inventory information.

EPCRA Section 312 outlines a "two-tier" approach for annual inventory reporting. All facilities that store hazardous or extremely hazardous substances must submit at least a Tier I and often a Tier II form as well. Tier I requires reporting on broad categories of physical hazards such as fire, sudden release of pressure, and reactivity, as well as acute and chronic health hazards. Upon request by a Local Emergency Planning Committee (LEPC), State Emergency Response Commission (SERC), or fire department, a facility may be required to submit the more detailed Tier II form (which may be submitted instead of the Tier I form). Tier II requires chemical specific information by CAS number. For example, a Tier I report might state that a facility stores 3,000 pounds of chemicals that pose chronic health hazards, while a Tier II form for the same facility would report 1,000 pounds of toluene and 2,000 pounds of benzene on-site.

Approximately 33 states require regulated facilities to submit Tier II forms, and most of the remaining states recommend that facilities submit Tier II forms.

A regulated facility is required to submit this information to each of the following groups: LEPCs, SERCs, and the local fire department with jurisdiction over the facility. A facility must submit an annual report for every chemical which requires an MSDS and which exceeds certain reporting thresholds for the amount of chemical stored on site at any one time. The reporting threshold for chemicals listed under EPCRA §302 as Extremely Hazardous Substances (EHSs) is the threshold planning quantity (TPQ), or 500 pounds, whichever is lower.[10] For all other chemicals with MSDSs, the threshold is 10,000 pounds. In general terms, the inventories contain information about the maximum quantity stored, the average quantity on-site at any given time, the location of the chemicals at the facility, and the number of days on-site.

Chemical coverage: The chemicals covered under Section 312 are all those defined as hazardous or extremely hazardous substances in Section 311 (essentially any substance that poses a health or physical hazard). All of these substances, for which facilities must submit MSDSs, are covered under OSHA's Hazard Communication Standard regulations. OSHA's definition of "hazardous chemical" not only includes toxic chemicals but also chemicals which are considered health hazards, irritants, sensitizers, corrosive, fire hazards, explosive, as well as reactive. Consequently, many more chemicals are included under OSHA's rule than under TRI.

Industry/facility coverage: Facilities that are required to submit MSDSs to the state authorities for hazardous chemicals on site also must submit Tier I and/or Tier II forms. While there are no SIC exemptions for facilities that are covered under the reporting threshold requirements, facilities not included under OSHA's Hazard Communication Standard (e.g., mines) do not have to file reports. Because the Section 312 thresholds cannot be used to determine whether a facility covered under Section 312 also would be covered under Section 313 (e.g., whether a facility which stores 10,000 lbs. of a toxic chemical listed under TRI also meets Section 313 thresholds), the extent to which facilities potentially subject to TRI reporting would be captured by Section 312 is unknown.

Release statistics/reporting frequency: Facilities covered under EPCRA Section 312 must submit their Tier I and/or Tier II reports containing data with respect to the preceding calendar year to their respective states annually on or before March 1.

When completing a Tier II form, a covered facility must report the following information:

The chemical name or the common name of the chemical and the CAS registry number (as it appears on the MSDS);

- Indication of whether the hazardous chemical is an extremely hazardous substance;

[10] The Extremely Hazardous Substances and their TPQs are listed in 40 CFR Part 355, Appendices A and B.

- Indication of whether the hazardous chemical is present at the facility in its pure state or in a mixture, and whether it is a solid, liquid, or gas;

- The applicable health and physical hazard categories;

- An estimate (in ranges) of the maximum amount of the hazardous chemical present at the facility at any time during the preceding calendar year (e.g., 10,000 to 99,999 pounds);

- An estimate (in ranges) of the average daily amount of the hazardous chemical present at the facility at any time during the preceding calendar year;

- The number of days the hazardous chemical was found on-site at the facility;

- A brief description of the manner of storage of the hazardous chemical at the facility;

- A brief description of the precise location of the hazardous chemical at the facility, and

- An indication of whether the owner or operator of the facility elects to withhold location information on a specific hazardous chemical from disclosure to the public.

Facilities that choose to withhold from the public certain data on hazardous chemicals must nevertheless provide the information to the relevant authorities via the Tier II Confidential Location Information Sheet. The information contained on these sheets is not made available to the public.

Accessibility: The general public may access Tier I and Tier II information on a facility by facility basis by forwarding a written request to either the SERC or the LEPC. Tier II information on facilities which do not meet the reporting threshold requirements also may be obtained from the SERC or the LEPC if a "general need" can be demonstrated on the part of the requester. In these cases, the relevant authorities will request that the relevant facility or facilities fill out Tier II forms.

The ability to access state EPCRA data at a higher level of aggregation depends partly on the information technology resources of the state authority responsible for maintaining the data. Approximately one half of all the states have some type of computerized database, and of those, five states (Arkansas, Maryland, New Jersey, Oregon, and Rhode Island) store full Tier II data in a modem-accessible format. However, because these databases were created using different software and possess different database structures, it is a considerable challenge to aggregate the data contained within them. At the present time, an integrated national repository of Tier I and Tier II data does not exist (ICF, 1996).

In some states that do not yet maintain computerized databases of Tier I and Tier II information, the parties requesting information are required to cover the copying and administrative costs of the data retrieval. Because some EPCRA reporting programs are unfunded, fees charged for this service range from low to substantial. In other states, the requesting parties must go to the office and perform the copying themselves (ICF, 1996).

Conclusion on the Availability of Inventory Data

Tier I forms only request information based on possible health and physical hazards, and do not ask for chemical-specific data. The level of detail and the number of chemicals covered in Tier II "maximum amount on site" inventory data surpasses the chemical inventory data requested on TRI Form R. Not all states, however, require submission of Tier II forms. Therefore, some of the facilities that are covered under TRI do not have to report as detailed inventory information under EPCRA Section 312.

There also are significant difficulties with respect to public access of Tier I and Tier II data. All information is reported to state authorities; there is no national integrated database. In addition, because not all states have set up computerized databases to manage this information, extensive data retrieval and analysis is often both cumbersome and expensive.

Pollution Prevention Data

Form R requires that facilities report a variety of information that can be used for pollution prevention analyses, including non-quantitative reporting of pollution prevention activities, production ratios, and chemical-specific amounts of materials treated, recycled, released (one-time, and for the entire year), and shipped off-site in wastes.

EPA Databases with Pollution Prevention Data

Besides TRI, waste prevention and management data are collected at the federal-level through RCRA Biennial reports. RCRA biennial report data are compiled in the Biennial Reporting System database (BRS), as discussed below. The level of chemical specificity and flowthrough estimates for waste prevention and management information in BRS and TRI are not available in other federal data sources.

BRS contains pollution prevention information on hazardous waste large quantity generators and treatment, storage, or disposal facilities. Data are collected primarily by states, and are collated by EPA into the BRS database system. States are not required to use official BRS forms for the submission of data; EPA transfers data on state forms into the BRS system as necessary (ICF, 1993).

All large quantity generators must submit the following facility-specific information to BRS:

- whether any source reduction or recycling activities took place during the reporting year, and

- limiting factors that have affected source reduction and/or recycling activities.

In addition, for each hazardous waste generated, a generator must specify the following pollution-prevention related data:

- RCRA waste code and hazardous waste quantity generated;

- efforts to reduce the volume and toxicity of wastes, and

- reductions in volume and toxicity actually achieved compared with those achieved in previous years.

If a hazardous waste has been minimized as the result of new activities implemented in the reporting year, the generator also must report the following pollution-prevention related information:

- quantity of waste recycled;
- source reduction quantity; and
- waste minimization activity implemented (e.g., waste segregation, inventory control).

RCRA Biennial reports provide some qualitative and quantitative pollution prevention information, but, at a systems level, do not have the same facility or chemical coverage as TRI. The BRS system is not a substitute for TRI pollution prevention data. RCRA Biennial reports only include hazardous wastes; pollution prevention data contained in TRI includes information on wastes or process by-products in all production phases and media. In addition, the chemical reporting universe is different between the two systems. The universe of toxic chemicals regulated under TRI differs from the universe of listed hazardous wastes or chemicals with hazardous waste characteristics regulated by RCRA.

Also, the facility universes captured by the two systems are not the same. RCRA Biennial reports are only completed by RCRA large quantity generators, while TRI reports are required by facilities in manufacturing industries that exceed employee as well as chemical manufacturing, process, and use thresholds. The BRS facility universe is also different due to RCRA waste exclusions and exemptions. For example, wastes mixed with domestic sewage that are excluded from BRS reporting can be an indirect water discharge that may be covered under TRI reporting.

The pollution prevention reporting in BRS contains information on hazardous waste minimization and recycling efforts. Where this information does overlap with TRI pollution prevention reporting, it does not contain the same level of detail. For example, in some cases

BRS pollution prevention information applies to wastestreams consisting of chemical mixtures, while TRI pollution prevention data are chemical specific. Since BRS waste codes are more general in nature than CAS numbers, a facility's waste mixture could change from year to year, and yet it might report the same waste code. Lack of precision in reporting of waste contents also could result in a situation where a facility reduces the aqueous quantity of its wastes, and thus appear to be preventing pollution. However, by changing its waste mixture, the facility might even increase the amount of toxic material entering the wastestream without modifying its BRS reporting. That the exact contents of a facility's waste mixture cannot always be determined may make it difficult to extract chemical-specific data from BRS.

State Environmental Agency Databases

Under current TRI reporting procedures, facilities send copies of all TRI reports to both state and federal agencies. Many states currently rely on the pollution prevention data received from TRI for planning and targeting purposes (U.S. EPA, 1993), and do not require additional reporting. However, two states, New Jersey and Massachusetts, have passed laws to collect materials accounting pollution prevention data that exceeds that found in Section 8 of Form R. Twelve other states have pollution prevention planning requirements in place, but only Massachusetts and New Jersey currently have mandatory materials accounting.[11]

Massachusetts Pollution Prevention Reporting: The Massachusetts Toxics Use Reduction Act (TURA) has required firms to report on toxic use for individual "production units" at their facilities since July of 1991. Facilities submit annual Toxics Use Reports (Form S) to the Massachusetts Department of Environmental Protection (MDEP) as a supplement to the TRI Form R. With the exception of qualitative source reduction pollution prevention reporting requirements and production ratios, TURA pollution prevention reporting requirements are additional to those collected by TRI.

Form S records information on the quantity of the toxic substance used on a facility-wide and production unit basis. Form S is divided into two parts: 1) cover sheet and 2) chemical reports. The cover sheet contains general facility information, a certification statement, and an identification of production units at the facility. Form S chemical reports must be filed on each listed toxic chemical manufactured, processed, or otherwise used at greater than 10,000 pounds per year (ICF, 1993). The form contains the following information on chemical use and pollution prevention:

- facility-wide and production unit data for each chemical,
- year-to-year reporting changes, and
- production unit reports.

[11] For a detailed comparison of materials accounting data elements reported to TRI, New Jersey, and Massachusetts, see (U.S. EPA, 1995d).

New Jersey Pollution Prevention Reporting: New Jersey has collected toxic chemical release and pollution prevention data longer than the TRI program has been in existence. Since 1979, New Jersey has collected toxic chemical release and pollution prevention data through a variety of separate programs and activities, gradually narrowing down the scope of these reporting requirements as TRI was introduced and expanded to include pollution prevention. In fact, the results of an Industrial Survey, which collected release and throughput data from 15,000 New Jersey facilities, were used to develop the list of SARA Title III chemicals (U.S. EPA, 1995d). For these reasons, New Jersey data, unlike data collected in Massachusetts, still overlaps somewhat with data collected on TRI Form R. New Jersey pollution prevention data also contain detailed throughput information which exceeds that currently contained in TRI. These throughput data require facilities to account for all amounts of the chemical brought or produced on-site, shipped off-site in products, destroyed on-site through treatment, recycled on-site, and released to the environment or shipped off-site in wastes.

New Jersey's additional reporting requirements apply to all TRI chemicals and all facilities covered by TRI (SIC codes 20-39). Originally, New Jersey required facilities manufacturing, processing, or using an Environmentally Hazardous Substance (EHS) to report toxic chemical release information (U.S. EPA, 1995d). The original EHS list was comparable to the list of chemicals generated by the Industrial Survey mentioned above, and therefore similar to the original SARA Title III list. The list of chemicals for which New Jersey now collects toxic chemical release and pollution prevention information has been expanded to contain those in the national TRI listing.

Alternative Sources of Emergency Release Data

TRI Form R requires that facilities report the quantity of TRI listed chemicals released to the environment as a result of remedial actions, catastrophic events, or one-time events not associated with production processes. Accidental release data reported to TRI also are potentially reported to the Emergency Response Notification System (ERNS) and OSHA's Integrated Management Information System (IMIS). However, as discussed below, ERNS is a database of initial notifications, made during or immediately after a release occurs. For this reason, data within ERNS may be incomplete or inaccurate and will not substitute for TRI emergency release data. IMIS is maintained by OSHA and only contains records of accidental releases resulting in worker fatalities or illness. This level of reporting is appropriate given that OSHA's mission is to protect worker health and safety; however, IMIS can not be used as a substitute for TRI emergency release data.

Emergency Response Notification System (ERNS)

ERNS is an EPA database that contains release notifications of oil and hazardous substances reported to the National Response Center (NRC), the ten EPA Regions, or the U.S. Coast Guard. ERNS contains data reported under the release notification requirements of several federal statutes: Section 103 of CERCLA; Section 304 of EPCRA; Section 1808(b) of the

Hazardous Material Transportation Act (HMTA); and Section 311 of the Clean Water Act (CWA). Figure 3 summarizes the four primary regulations requiring accidental release reporting. ERNS reports may include information on the discharger, material released, amount released, source of release, incident location, and environmental medium into which the release occurred. Estimates of the quantities released are available in about two-thirds of notifications. Oil releases that violate the CWA account for the majority of ERNS notifications (roughly 57 percent). CERCLA substances account for, on average, 19 percent of all notifications in ERNS, and notifications of other chemicals account for the remaining 24 percent of notifications. ERNS notifications are typically used by On-Scene Coordinators (OSCs) to determine the appropriate federal response action.

FIGURE 3
STATUTES REQUIRING ACCIDENTAL RELEASE REPORTING

Statute	Reporting Requirements	Percent of Notifications
CERCLA	Requires that the release of a CERCLA hazardous substance that meets or exceeds the reportable quantity (RQ) set forth in 40 CFR §302.4 must be reported to the NRC.	19 percent
EPCRA	Requires that the release of an RQ or more of an EPCRA extremely hazardous substance or a CERCLA hazardous substance (one pound or more if a reporting trigger is not established by regulation) that results in exposure of people outside the facility boundary be reported to State and local authorities.	<24 percent
HMTA	Requires that the release of a DOT hazardous material during transportation be reported to the NRC under certain circumstances such as death, injury, significant property damage, evacuation, highway closure, etc.	<24 percent
CWA	Requires that the release of oil be reported to the NRC if the release: 1) violates applicable water quality standards; 2) causes a film, sheen or discoloration of the water or adjoining shoreline; or 3) causes a sludge or an emulsion to be deposited beneath the surface of the water or upon the adjoining shorelines.	57 percent
Source: U.S. EPA, 1995e.		

ERNS is a database of initial notifications, made during or immediately after a release occurs. Because the data are reported at such an early stage, the exact details of the release are often unknown and are therefore not reported. It is estimated that two-thirds of the 193 data fields in ERNS are not completed for most release notifications. In addition, duplicate reports may appear in the database because of follow up calls that are not identified as such or observers

reporting a release that has already been reported. Approximately five percent of ERNS records are estimated to be duplicates. (U.S. EPA, 1995e)

Integrated Management Information System (IMIS)

IMIS is an OSHA database that contains records of workplace inspections conducted by OSHA industrial hygienists. Two general types of inspections are conducted by OSHA: 1) Scheduled or planned inspections which are on-site enforcement inspections to verify compliance with OSHA standards, and 2) Unplanned inspections which are investigations of workplace incidents where there is one fatality or three or more worker hospitalizations (five or more worker hospitalizations were required to trigger an inspection before 1993). Inspection data are input and stored within IMIS, providing a record of OSHA activities at each workplace that has been inspected.

OSHA is estimated to add more than 120,000 inspection records per year, of which 4,000-5,000 are related to accidents. Accident inspections include a short description of the incident, information regarding each worker that is injured, and any hazardous substances that may be involved. It is estimated that 100 incidents reported each year involve hazardous substances. A four digit hazardous substance code is entered into IMIS rather than a CAS number. The quantity of hazardous material released is not entered. In addition, it can not be assumed that the reported death or injury was a result of an accidental release even in cases where a hazardous substance was involved. For example, if a maintenance person cleans the inside of a storage tank and is asphyxiated by the nitrogen rich environment, the death is not the result of an "accidental release". (U.S. EPA, 1995e)

Summary on Availability of Pollution Prevention and Accidental Release Data

The data systems discussed above cannot replace TRI's pollution prevention and accidental release data. Difficulties exist in chemical and facility coverage, reporting frequency, and the level of data detail. Specifically, RCRA Biennial reports cannot easily be used as a substitute for TRI pollution prevention data. While BRS provides some qualitative and quantitative pollution prevention information, it does not have the same facility or chemical coverage as TRI. BRS only includes hazardous wastes, while TRI pollution prevention data includes information on wastes or process by-products in all production phases and media. Because BRS collects data organized by BRS waste codes, it also lacks the chemical-specific detail that TRI contains. In addition, the facility and chemical reporting universes are different between the two systems.

Overlap of State pollution prevention data with that found in TRI is minimal; state data could not be used to replace current TRI pollution prevention reporting requirements. Under current TRI reporting procedures, facilities send copies of all TRI reports to both state and federal agencies. Many states have come to rely on this easily available source of pollution prevention data. As Massachusetts and New Jersey demonstrate, even those states that had taken

a proactive role in collecting toxics release and pollution prevention data scaled back their programs with the introduction of mandatory TRI reporting. No state program collects all of the pollution prevention data currently contained in Form R, though some states (e.g., New Jersey and Massachusetts) augment TRI pollution prevention data with requirements additional to those contained in Section 8 of Form R. These data, such as materials accounting data, are used at the state level for a variety of purposes, including benchmarking of facility pollution prevention efforts and the determination of toxic material flows in production processes.

In addition, accidental release data reported to ERNS and IMIS do not substitute for TRI accidental release data. ERNS is a database of initial notifications, made during or immediately after a release occurs. For this reason, data within ERNS may be incomplete or inaccurate. Furthermore, IMIS only contains records of accidental releases resulting in worker fatalities or illness and does not include records of CAS numbers or quantities released.

Value Added from the Tri Reporting System

In addition to containing data not available through other sources, TRI enhances the usefulness and functionality of the data by allowing public access to the data, linking release data across media (e.g., water, air, land), and providing definitional consistency for the units of measurement. These features give TRI additional advantages over any emissions data system that might be assembled from non-TRI sources.

Perhaps the most important advantage TRI possesses over non-TRI sources is the information that can only be found in TRI. As described, data unique to TRI include chemical-specific multimedia release information as well as important pollution prevention information. For example, AFS currently only tracks a limited amount of HAP emissions, and BRS does not track hazardous waste treatment, transfer, or disposal at a chemical-specific level. TRI can provide this as well as other types of information not available elsewhere.

Because an important part of TRI's mission is to provide emissions data to the public, many different methods of access to TRI have been implemented. Data analysis difficulties aside, access issues make it very difficult for the general public to assemble non-TRI data into a TRI-like form. Current methods of accessing TRI include on-line resources such as TOXNET, RTK NET, and the EPA World Wide Web (WWW) Server, electronic media such as CD-ROM, and printed media (see Attachment D-3 for a more complete listing of methods of public access for TRI and other databases). While many non-TRI sources also can be accessed in multiple ways, the only source containing most of the databases necessary to begin assembling a substitute for TRI is the EPA mainframe computer. The EPA mainframe, however, can only be accessed by authorized users. Some alternative sources, such as the ENVIROFACTS database on the EPA Web Server, do not carry all of the important databases, and others, such as the Freedom of Information Act, are slow and cumbersome. TRI solves many of these access problems by placing all of the information in one location, and providing many avenues of access to that data.

Another major problem associated with using non-TRI sources for TRI-like data is linking facility release information across various release media. Currently, the best tool for identifying facilities reporting to multiple systems is the Facility Indexing System (FINDS). FINDS is a centralized inventory of facilities monitored or regulated by EPA, and serves as an index database to other EPA Program Office databases. FINDS assigns a unique Facility Identification Standard (FIDS) number (commonly referred to as the FINDS or EPA ID) to facilities regulated under Federal law, and uses this number to index multi-media information across multiple databases. FINDS maintains facility level information such as the facility ID number, facility name, facility address, program office(s) monitoring the facility, and program office system IDs.

The FINDS linkage system can be accessed directly through FINDS, or it can be accessed through the Integrated Data for Enforcement Analysis (IDEA) database, maintained by the Office of Enforcement and Compliance Assurance (OECA). Both of these databases are located on EPA's mainframe computer (not accessible to the general public) at the National Computer Center (NCC) in Research Triangle Park (RTP). IDEA is a convenient tool for integrating data across program databases because it overcomes both the hardware and software incompatibilities between databases, and includes the FINDS linkage table as a means for integrating multimedia data. IDEA maintains up to date copies of several EPA program databases, including FINDS, AFS, FFIS, PCS, RCRIS, and TRI. BRS is the next database to be included in IDEA.

The above advantages notwithstanding, it is important to recognize that IDEA and FINDS have their own shortcomings with respect to any effort to assemble TRI-like information from non-TRI sources. One significant difficulty with IDEA involves problems with the FINDS linkages themselves. Because of various data inconsistencies, many facilities are not linked to all of their permits through IDEA, or have incorrectly linked permits. TRI's reporting mechanism helps to reduce this problem within TRI, where data from a facility is reported at one time in one place. In addition, because IDEA is designed to primarily provide compliance and enforcement data, the system does not always include emissions data even when such data exists. For example, while IDEA contains AFS compliance data, it does not contain AFS emissions data. Consequently, direct access to AFS is required to obtain AFS emissions data, which still does not include much information on air toxics. Finally, the general public would probably encounter difficulties using IDEA because of access restrictions and the technical knowledge required to effectively utilize IDEA.

The lack of definitional consistency also can result in difficulties in understanding information aggregated across non-TRI databases. A substantial amount of effort would be required to overcome discrepancies in units of measure, chemical coverage, reporting thresholds, reporting exemptions, and reporting frequencies in the various databases. TRI overcomes many of these problems by allowing the user to view cross-media data using a single set of reporting definitions and requirements.

The different units and data aggregation methodologies used by various non-TRI sources can lead to data incompatibilities. For example, because PCS data are reported in terms of PCS

parameters (usually chemical concentrations as opposed to units of mass), some fairly involved calculations must take place before that data can be converted into TRI-like units (see Section 8.3.2. for a more detailed description of PCS). For BRS, facilities report their hazardous waste throughput in terms of aggregated waste *codes*, which cannot always be easily broken down to specific chemicals (see also 8.3.3. for a more detailed description of BRS). Discrepancies between the way chemical information is reported to the various non-TRI databases can make it difficult or even impossible to accurately sum totals of pollutants across databases. Because all TRI release and transfer data are reported in a uniform fashion, no such difficulty exists in TRI.

Databases often also have different reporting frequencies, which can make it difficult to assemble high quality historical data at the facility level. BRS requires facilities to report data every two years, whereas AFS requires but does not enforce annual reporting. Because TRI requires annual reporting from all covered facilities, TRI effectively overcomes this problem.

In summary, the value which TRI alone adds to the community at large is significant. The many technical, access-related, and data coverage problems associated with attempting to use non-TRI sources for TRI data makes impractical the substitution of these sources for TRI.

5(b) Consultations

EPA has consulted with a large number of individuals and organizations throughout all segments of the public in developing the TRI program. Since the initial development of the program, feedback on EPA's outreach efforts have been received from various organizations, environmental and public interest groups, trade associations, and individual representatives. This feedback is continually sought and incorporated in the ongoing evolution of the 313 program.

EPA has held two public meetings to discuss the expansion of TRI to additional industrial groups. The first was held on May 29, 1992 in Washington, DC. Representatives from the public which provided public comment to the Agency at that time were the:

Small Business Coalition;
Natural Resources Defense Council;
American Feed Industry Association;
Edison Electric Institute;
Unison Institute;
INFORM;
ICI Americas; and
Mitchell Energy Corp.

The second public meeting was held on May 25, 1995. The public meetings allowed interested parties, including representatives of the industries included in this proposal, to voice opinions and concerns regarding the facility expansion undertaking. EPA used these meetings as an opportunity to inform interested parties about the possibility of this proposed action and to make available information regarding its analysis for comment.

In addition, over the course of the past five years, EPA has used the regularly-held public meetings of the Forum on State and Tribal Toxicities Action (FOSTTA), which represents state environmental agencies, and the National Advisory Council on Environmental Policy and Technology (NACEPT), which includes representatives from industry, environmental organizations, states, and academia, to discuss the expansion of the EPCRA section 313 industry group list. These groups have provided EPA with substantive input prior to this proposal for structuring its screening and analytical activities conducted in support of this proposal. EPA has recently held discussions with other state regulatory officials, in particular with the Interstate Mining Compact Commission (IMCC).

EPA also initiated a series of formal and informal meetings with industry representatives as well as with representatives of environmental, community and labor organizations. Although meetings with such groups have been held since 1992, EPA substantially increased this element of its outreach effort since 1994, and continued to do so until the publication of the proposal to expand the types of industries required to report under EPCRA section 313. The more formal of these meetings, referred to as "focus group meetings," involved representatives of various trade associations and companies from the various industry groups under consideration. These meetings primarily involved discussions with EPA officials regarding the expansion of EPCRA section 313 reporting requirements as well as issues specific to the industries under consideration. A "focus group meeting" also was held with environmental, labor and community organizations. EPA also used these meetings as an opportunity to share data and additional information collected as part of its expansion effort, and to solicit comment regarding the analytic approach used in the screening process. A list of the organizations participating in the focus groups is included in Attachment F.

EPA also has worked to receive input from small businesses. Many trade associations and other industry organizations with which EPA has held discussions include small businesses as members or participants. These groups have represented the interests of some small businesses to EPA, and have helped to inform businesses about EPA's intentions. In addition, EPA has addressed forums such as the Small Business Roundtable regarding this proposed action, and has briefed officials of the Small Business Administration as well as EPA's Small Business Omsbudsman and Regional Small Business Liaisons on this matter. A detailed listing of EPA's outreach efforts is included in Attachment F.

5© Effects of Less Frequent Collection

Section 313 requires annual reporting. Section 313(i) permits EPA to modify the reporting frequency by rulemaking, after notification to Congress. However, EPA may not permit less frequent reporting unless it can find that such modification is consistent with the purposes of the Act, as determined by previously submitted Form Rs. Thus, EPA may not permit less frequent reporting from the proposed industry groups until it has some experience with their reports.

Further, less frequent reporting for all industry groups would significantly delay the availability of the data to the public. This is because Form Rs are required to be submitted on or before July 1 following the year in which the reported releases and transfers occur. The national data are available from EPA within a year after that, thus delaying public access.

5(d) General Guidelines

This ICR adheres to the guidelines stated in the 1980 Paperwork Reduction Act, as amended, OMB's implementing regulations, and all applicable OMB guidance.

Although reporting facilities are required to identify the chemical for which reports are submitted, they can claim the chemical identity as a trade secret. A generic name must be provided as part of the information made available to the public. EPA securely stores and maintains the true identity of the chemical. This is further discussed in 5(e)(i).

EPA is actively encouraging the use of automated techniques, most notably PC-based report generating programs produced both by the Agency and by the private sector and other submissions on magnetic media. EPA recognizes that not all reporting facilities are able to or are interested in investing the time and funds necessary to employ such automated techniques. The final decision on how to report is ultimately the reporting facility's.

Small facilities (less than 10 full-time employees or equivalent) are exempt from reporting under section 313. An optional range reporting provision and an alternate threshold have been promulgated that afford burden reduction to all facilities but are particularly beneficial to smaller facilities with small releases and wastes.

5(e) Confidentiality and Sensitive Questions

(i) Confidentiality

Respondents may designate the specific chemical identity of a substance as a trade secret. Procedures for submission and review of trade secret claims under section 313 are set forth in 40 CFR 350. This rule implements the general trade secret provisions of EPCRA. When a respondent claims the chemical identity to be a trade secret, EPA, upon substantiation of the claim, will not disclose the identity of the chemical to the public. EPA securely stores forms with trade secret information and allows access to those documents only to persons with Trade Secret clearance. Data made available to the public through any means does not include trade secret information.

(ii) Sensitive Questions

This collection does not request any sensitive information.

6. BURDEN AND COST OF THE COLLECTION

6(a) Respondent Burden

This section summarizes the estimated incremental respondent burden created by adding new industry groups to TRI. The information is presented separately by type of activity for Form R and for the Toxic Chemical Release Inventory Certification Statement, and by industry group. The information is provided for a typical facility in the new industry groups, for the aggregate of all facilities in the industry group, and for the proposal as a whole.

The burden hour estimates used here are based upon EPA and respondent experience, previous ICRs, and information acquired through a follow-up to site visits. Burden estimates associated with the pollution prevention reporting requirements in section 8 of the Form R were based on the Regulatory Impact Analysis of the rulemaking to amend Form R pursuant to the Pollution Prevention Act of 1990. Burden estimates for the Toxic Chemical Release Inventory Certification Statements were based on the Regulatory Impact Analysis for the Alternate Threshold rulemaking.

The time estimates used by EPA are average values. As with any average, some facilities will be above the average and others will be below it. Large, complex facilities will require more than the average time to comply. However, there are many other facilities subject to the rule that are not large or complex. Therefore, EPA believes that its time estimates represent reasonable averages.

The tasks associated with TRI reporting include:

- **Compliance Determination:** Facilities must determine whether they meet the criteria for Section 313 reporting. This task includes the time required to become familiar with the definitions, exemptions, and threshold requirements under the TRI program, to review the list of TRI chemicals, and to conduct preliminary threshold determinations in order to determine if the facility is required to report.

- **Rule Familiarization:** Facilities that are reporting under Section 313 for the first time must read the reporting package and become familiar with the reporting requirements. This includes the time needed to review instructions, and the time needed to train personnel to be able to respond to a collection of information.

- **Report Calculations and Completion:** Facilities must gather data and perform calculations to provide the information required on the form. This includes the time to search data sources, and the time to complete and review the information.

- **Mailing and Recordkeeping:** Facilities must maintain recordkeeping systems and mail the report to EPA and the State the facility is located in. This includes the time to transmit or otherwise disclose the information.

The seven new industry groups covered by this proposal do not currently report to TRI. Therefore, there is no burden to adjust existing ways to comply with any previously applicable instructions and requirements.

The remainder of this section discusses the burden associated with each specific industry task and the estimated number of facilities performing each task and/or estimated number of reports covered by each task. Activities are organized into three categories: general activities, activities specific to completing the Form R, and activities specific to completing the Toxic Release Inventory Certification Statement. The burden hours for each activity are summarized in Table 1.

General Activities

COMPLIANCE DETERMINATION

A facility must report under Section 313 if it: (a) is within an SIC code or industry group covered by the TRI program; (b) has ten or more full-time equivalent (FTE) employees; and © manufactures, processes or uses any of the listed chemicals above the threshold quantities. All facilities must determine if they meet these criteria. It is assumed that companies will incur little incremental costs to make determinations regarding the first two criteria. It is assumed that the third determination, however, would require the management and technical staff to determine the types of chemicals used at the facility, and whether they are manufactured, processed, or otherwise used above threshold levels.

The number of facilities of facilities performing compliance determination for each industry being proposed for addition to TRI is shown in Table 4. Only those facilities in the seven additional industry groups being proposed for addition to TRI are assumed to conduct a compliance determination. For example, since only coal and oil-fired electric utility plants in SIC 49 are being added to TRI, they are the only type of electric utility plants that are assumed to perform a compliance determination. Since other types of facilities (nuclear, hydroelectric, geothermal, wind, solar, etc.) would not meet the first criterion (i.e., they are not within a covered SIC code or industry group), it is assumed that the other facilities would incur little incremental effort to determine they are not covered. In other industry groups, such as in Chemical and Allied Products Wholesalers, SIC 5169, some facilities will engage in reportable activities for listed chemicals and will exceed the threshold, while others will not. In these industry groups, all facilities with 10 or more FTEs will perform compliance determinations.

To make the determination, a facility must first review whether it manufactures, processes, or otherwise uses any of the chemicals in any quantity. If it does, then it must make a threshold

determination to ascertain whether it manufactures or processes at least 25,000 pounds of the chemical or chemicals it has identified, or otherwise uses at least 10,000 pounds. The first activity involves checking the list and the level of effort is related to the number of chemicals on the list. In many cases, this step should be completed within a relatively short period of time. The second activity involves a more detailed set of calculations, and will typically involve a more substantial effort than is needed for the first activity. Therefore, the time spent making threshold determinations is expected to comprise the majority of the time spent making compliance determinations. The total amount of time required will depend on the number of chemicals present at the facility in any quantity.

Facilities are estimated to require an average of approximately 4 hours of managerial time and 12 hours of technical time for compliance determination in the first year. A facility is expected to require less time to complete a compliance determination in subsequent years as the facility's personnel are already familiar with the TRI program. Facilities are estimated to require an average of one hour of managerial time and 3 hours of technical time for compliance determination in subsequent years in order to compare recent operations to those in previous years and review the requirements of the TRI program.

RULE FAMILIARIZATION

If a facility is subject to Section 313 reporting for the first time, its staff must learn and understand the reporting requirements. At a minimum this would involve reading the instructions to the Toxic Chemical Release Inventory Reporting Form R, but it could also involve consulting EPA guidance documents, attending a training course and/or calling the EPCRA technical hotline. The cost associated with rule familiarization occurs only in the first year after a facility becomes subject to reporting. In subsequent years, the staff will be familiar with the requirements that apply to their facility, and would no longer bear this cost. All facilities affected under the expansion of the TRI program to additional SIC codes are assumed to be reporting for the first time, and thus would incur this cost.

It is estimated that facilities reporting under Section 313 for the first time will need to make a one-time expenditure for rule familiarization averaging 12 hours of management time and 22.5 hours of technical time, for a total of 34.5 hours.

Activities Specific to Completing the Form R

FORM R CALCULATIONS AND COMPLETION

Facilities that determine they must report under Section 313 will incur additional costs to retrieve, process, review, and transcribe information to complete each report. Most of the time for form completion is to calculate releases, transfers and other waste management practices; relatively little time is required to copy information to the form. The facility must complete one Form R for each TRI listed chemical it is reporting. This takes more time in the first year than in

subsequent years. In most instances the process in subsequent years will consist of updating data and modifying the information reported on the previous year's Form R, rather than originating or retrieving data for the first time.

Form R calculations and completion are estimated to average 69.0 hours per report in the first year of reporting. This time is comprised of 20.9 hours of management time, 45.2 hours of technical time, and 2.9 hours of clerical time. In subsequent years, report calculation and completion is estimated to require an average of 47.1 hours of time (14.3 hours of managerial, 30.8 hours of technical, and 2 hours of clerical time).

MAILING AND RECORDKEEPING (FORM R)

After a facility has completed the form, it incurs additional labor costs for recordkeeping associated with filing a Form R report. Recordkeeping allows a facility to use the information in making calculations in subsequent years, and as documentation in the event it receives a compliance audit. Facilities may maintain records such as estimation methodology and calculations, engineering reports, inventory, incident and operating logs, and any other supporting materials needed to provide the information required on the Form R.

Mailing and recordkeeping are estimated to require an average of 5 hours per form (4 hours of technical and one hour of clerical time). This estimate accounts for the additional recordkeeping burden due to new data elements required by the Pollution Prevention Act. Recordkeeping and mailing costs are not estimated to vary from the first year to subsequent years.

Activities Specific to Completing Certification Statements Under the Alternate Threshold

CERTIFICATION STATEMENT CALCULATIONS AND COMPLETION

In order to file a certification statement, facilities must first determine that they qualify for the alternate threshold for low annual reportable amounts. Thus, filing an annual certification statement involves two steps. First, a facility must estimate its annual reportable amount, and the amount manufactured, provided or otherwise used. Second, it must complete the certification statement. This is estimated to require an average of 46.4 hours of time in the first year of reporting (16.5 hours of managerial, 27.7 hours of technical, and 2.2 hours of clerical time) per affected chemical. In subsequent years, these calculations are estimated to average 31.6 hours of time in subsequent years (11.2 hours of managerial, 18.9 hours of technical, and 1.5 hours of clerical time) per affected chemical.

MAILING AND RECORDKEEPING (ANNUAL CERTIFICATION)

Facilities that qualify for the alternate threshold incur the additional cost for recordkeeping and mailing. Recordkeeping allows a facility to use the information in making calculations in subsequent years, and as documentation in the event it receives a compliance audit. As in the case of recordkeeping associated with a Form R, facilities may maintain records such as estimation methodology and calculations, engineering reports, inventory, incident and operating logs, and any other supporting materials.

Recordkeeping and mailing for the certification statements is estimated to require an average of 3.0 hours per report (2.4 hours of technical and 0.6 hours of clerical time). As in the case of recordkeeping and mailing costs associated with a Form R, these costs do not vary between first and subsequent years.

Burden Per Respondent Facility

Table 2 presents the average Form R burden for each of the industry groups being added to TRI. This includes the burden to perform the necessary calculations and recordkeeping for Form R, as well as rule familiarization and compliance determination burdens for the facility.

An individual facility may submit Form R(s), Toxic Chemical Release Inventory Certification Statement(s) or both. The burden to submit these reports (including the time to make calculations, complete the report and perform recordkeeping) depends on the number of reports submitted. However, the burden for compliance determination and rule familiarization activities are estimated at the facility level, irrespective of the number of reports submitted.

The burden of compliance determination and rule familiarization at a facility may be common to both Form Rs and Toxic Chemical Release Inventory Certification Statements. However, for the purpose of this analysis, the burden of compliance determination and rule familiarization is assigned to the Form R. This is consistent with the original ICR for the Toxic Chemical Release Inventory Certification Statement, which also assigned all of the burden of compliance determination and rule familiarization to the Form R.

Therefore, the first year results for Toxic Release Inventory Certification Statements in Table 3 exclude compliance determination and rule familiarization.

Table 4 lists the estimated number of affected facilities and chemical reports in the industry groups being proposed for addition to TRI. This information can be combined with the average estimated hours per activity shown in Table 1 in order to calculate the total annual burden hours by activity for each industry group. The burdens in the first year of reporting for Form R and the Toxic Release Inventory Certification Statement are shown in Table 5 and Table 6, respectively. Tables 7 and 8 repeat the same information in subsequent years.

TABLE 1 - BURDEN BY ACTIVITY

CATEGORY	ACTIVITY	AVERAGE HOURS BY LABOR CATEGORY			TOTAL HOURS
		Managerial	Technical	Clerical	
FIRST YEAR					
Per Facility	Rule Familiarization	12	22.5	0	34.5
	Compliance Determination	4	12	0	16
Per Form R	Calculations	20.9	45.2	2.9	69
	Recordkeeping	0	4	1	5
	Subtotal - Form R	20.9	49.2	3.9	74
Per Certification Statement	Calculations	16.5	27.7	2.2	46.4
	Recordkeeping	0	2.4	0.6	3
	Subtotal - Certification	16.5	30.1	2.8	49.4
SUBSEQUENT YEARS					
Per Facility	Compliance Determination	1	3	0	4
Per Form R	Calculations	14.3	30.8	2	47.1
	Recordkeeping	0	4	1	5
	Subtotal - Form R	14.3	34.8	3	52.1
Per Certification Statement	Calculations	11.2	18.9	1.5	31.6
	Recordkeeping	0	2.4	0.6	3
	Subtotal - Certification	11.2	21.3	2.1	34.6

TABLE 2 - Average Burden per Facility for Form R

SIC	Rule Familiarization (Average hours per facility)	Compliance Determination (Average hours per facility)	Average Number of Form Rs per Facility	Calculations Burden (Average hours per facility)	Recordkeeping Burden (Average hours per facility)	Total Hours for an Average Facility
FIRST YEAR						
10	34.5	16	4	276	20	347
12	34.5	16	2	138	10	199
4911/4931/ 4939	34.5	16	4.5	310.5	22.5	384
4953	34.5	16	31	2139	155	2345
5169	34.5	16	10.5	724.5	52.5	828
5171	34.5	16	3	207	15	273
7389	34.5	16	5	345	25	421
SUBSEQUENT YEARS						
10	0	4	4	188	20	212
12	0	4	2	94	10	108
4911/4931/ 4939	0	4	4.5	212	22.5	238
4953	0	4	31	1460	155	1619
5169	0	4	10.5	495	52.5	551
5171	0	4	3	141	15	160
7389	0	4	5	236	25	265

Table 3 - Average Burden per Facility for Certification Statements

SIC	Average Number of Certification Statements per Facility	Calculation Burden for Certifications (Average hours per facility)	Recordkeeping Burden for Certifications	Total Hours for an Average Facility
FIRST YEAR				
10	0	0	0	0
12	0	0	0	0
4911/4931/4939	1.5	70	4.5	74
4953	10	464	30	494
5169	3.5	162	10.5	173
5171	0	0	0	0
7389	0	0	0	0
SUBSEQUENT YEARS				
10	0	0	0	0
12	0	0	0	0
4911/4931/4939	1.5	47	4.5	52
4953	10	316	30	346
5169	3.5	111	10.5	121
5171	0	0	0	0
7389	0	0	0	0

TABLE 4
ESTIMATED NUMBER OF AFFECTED FACILITIES AND CHEMICAL REPORTS

SIC Code	Compliance Determination Facilities	Reporting Facilities	Form Rs (*)	Certification Statements
10 (except 1081)	328	328	1,176	0
12 (except 1240)	1,749	321	642	0
4911/4931/4939	974	974	4,175	1,392
4953	164	164	6,637	74
5169	2,801	782	8,354	2,785
5171	3,842	3,842	12,394	0
7389	17	17	85	0
TOTAL	9,875	6,428	33,463	4,251

(*) Calculated from expected distribution of forms. Not precisely equal to product of column 4 of Table 2 and column 3 of this Table.

TABLE 5 - ESTIMATED TOTAL ANNUAL BURDEN HOURS BY ACTIVITY
FORM R--FIRST YEAR
(Hours)

SIC Code	Compliance Determination	Rule Familiarization	Completing Form Rs	Mailing & Recordkeeping Form Rs	Total
10	5,248	11,316	81,250	5,880	103,694
12	27,984	11,075	44,356	3,210	86,625
4911/4931/4939	15,584	33,603	288,451	20,875	358,513
4953	2,624	5,658	458,550	33,185	500,017
5169	44,816	26,979	577,178	41,770	690,743
5171	61,472	132,549	856,301	61,970	1,112,292
7389	272	587	5,873	425	7,157
TOTAL	158,000	221,767	2,311,959	167,315	2,859,041

TABLE 6 - ESTIMATED TOTAL ANNUAL BURDEN HOURS BY ACTIVITY
CERTIFICATION STATEMENTS--FIRST YEAR
(Hours)

SIC Code	Completing Certification Statements	Mailing & Recordkeeping Certification Statements	TOTAL
10	0	0	0
12	0	0	0
4911/4931/4939	64,589	4,176	68,765
4953	3,434	222	3,656
5169	129,224	8,355	137,579
5171	0	0	0
7389	0	0	0
TOTAL	197,247	12,753	210,000

TABLE 7 - ESTIMATED TOTAL ANNUAL BURDEN HOURS BY ACTIVITY - FORM R
SUBSEQUENT YEARS
(Hours)

SIC Code	Compliance Determination	Completing Form Rs	Mailing & Recordkeeping Form Rs	TOTAL
10	1,312	55,272	5,880	62,464
12	6,996	30,174	3,210	40,380
4911/4931/4939	3,896	196,225	20,875	220,996
4953	656	311,939	33,185	345,780
5169	11,204	392,638	41,770	445,612
5171	15,368	582,518	61,970	659,856
7389	68	3,995	425	4,488
TOTAL	39,500	1,572,761	167,315	1,779,576

TABLE 8 - ESTIMATED TOTAL ANNUAL BURDEN HOURS BY ACTIVITY, FOR CERTIFICATION STATEMENTS IN SUBSEQUENT YEARS (Hours)

SIC Code	Completing Certification Statements	Mailing & Recordkeeping Certification Statements	TOTAL
10	0	0	0
12	0	0	0
4911/4931/4939	43,987	4,176	48,163
4953	2,338	222	2,560
5169	88,006	8,355	96,361
5171	0	0	0
7389	0	0	0
TOTAL	134,331	12,753	147,084

6(b) Respondent Costs

Wages

Labor hours are divided into three categories: managerial, technical, and clerical. Updated 1995 hourly labor rates, including fringe benefits and overhead, were developed by EPA for each of these categories using the methodology developed for EPA's Comprehensive Assessment Information Rule (CAIR).[12] The new wage rates were calculated using current data on salaries and benefits in the manufacturing sector for these three labor categories.

Wage data used in developing the basic wage rates for this analysis were derived from 1993 wage information published by the Bureau of Labor Statistics (BLS) for all goods-producing, private industries.[13] The managerial, technical, and clerical wage rates are based on wage information for four BLS occupation categories: 1. Engineers; 2. Accountants; 3. Attorneys; and 4. Secretaries. As presented in Table 9, the managerial and technical level wage rates are composites of the BLS wage rates for several occupation categories and levels. The managerial level wage rate is a composite of the wage rates of Engineers (levels VI-VIII), Accountants (levels V-VI), and Attorneys (levels IV-VI). The technical level wage is a composite of the wage rates of Engineers (levels III-VIII) and Accountants (levels (III-VI). The clerical wage rate is an average of all the clerical wage levels provided by BLS (i.e., levels I-V). The weighting factors used to develop the managerial and technical wage rates are based on

[12] Memorandum from J. Karnes to Brian Muehling (EPA/OTS) on Updating of Unit Labor Costs to Reflect Inflation and Industry Comments for CAIR, Centaur Associates Inc. May 28, 1987.

[13] Bureau of Labor Statistics, Occupational Compensation Survey, National Summary 1993, U.S. Department of Labor, Washington, D.C., Bulletin 2453, December 1994, Tables D-1 and D-3.

information provided by the chemical industry and chemical industry trade associations on the typical fraction of total reporting effort that is accounted for by each specific BLS occupation category.[14]

The 1993 composite annual salary estimates were adjusted to first-quarter 1995 dollars using the Employment Cost Index (ECI) for white-collar occupations in private industries. The 1995 adjusted, composite salary for the managerial, technical, and clerical labor categories was then multiplied by benefits and overhead factors to estimate a 1995 loaded, annual salary. Detailed benefits data for white-collar occupations in private, goods-producing industries were used to account for the additional cost of benefits for managerial, technical, and clerical labor.[15] The overhead factor of 17 percent is based on information provided by the chemical industry and chemical industry trade associations. The loaded annual salary was then divided by 2,080 hours (i.e., the average annual number of hours worked per year by a full-time employee) to derive the loaded, hourly wage rates used in this analysis for each labor category. The hourly wage rates are $77.61 for managerial personnel, $58.29 for technical personnel, and $23.65 for clerical personnel, all in 1995 dollars.

[14] The methodology used for the CAIR analysis also used wage information for chemists in estimating the managerial and technical wage rates. The current methodology does not include chemists in estimating the composite wage rates because updated information on wage levels for chemists was not available from BLS. The Engineer salary information is expected to be an adequate proxy for Chemist salary information.

[15] Bureau of Labor Statistics, Employer Costs for Employee Compensation - March 1995, USDL Bulletin: 95-225. June 22, 1995. Table 11.

TABLE 9
LOADED HOURLY WAGE RATES BY LABOR CATEGORY

Labor Category	Occupation (levels)	Avg. Salary	Weighting Factor	1993 Comp. Salary*	ECI Ratio 6/93:3/95	1995 Adjusted Salary	1995 Benefits (% Salary)	1995 Overhead (% Salary)	1995 Loaded Annual Salary	1995 Loaded Hourly Rate
Managerial	Engineer (6-8)	$93,981	10/17	$55,283						
	Attorney (4-6)	$111,263	5/17	$32,724						
	Accountant (5-6)	$73,528	2/17	$8,650						
	Composite		17/17	$96,658	1.057	$102,167	41.0%	17.0%	$161,424	$77.61
Technical	Engineer (3-8)	$74,802	5/6	$62,335						
	Accountant (3-6)	$59,436	1/6	$9,906						
	Composite		6/6	$72,241	1.049	$75,781	43.0%	17.0%	$121,249	$58.29
Clerical	Clerical (1-5)	$28,850	1/1	$28,850						
	Composite		1/1	$28,850	1.059	$30,552	44.0%	17.0%	$49,188	$23.65

* 1993 Composite Salaries are determined by multiplying average salaries by the weighting factor and summing across occupations.
Source: Bureau of Labor Statistics (BLS) and the Employment Cost Index.

Wages in the industry groups covered under the proposed expansion may vary from wage rates derived for the manufacturing sector because many of the affected SIC codes are not categorized under goods-producing industry, which is the industry category used to calculate the original wage rates. The affected industry groups fall within other industry categories within the service-producing sector as categorized by BLS. It is typical to find differences in wages and benefits between the manufacturing and service producing sectors of the economy. For example, information provided by the Bureau of Labor Statistics (BLS) on employee compensation indicates that total compensation of employees in manufacturing industries is approximately 27 percent higher than total compensation of employees in nonmanufacturing industries.[16]

Table 10 shows BLS industry categories and the SIC codes which fall under them. The proposed industry groups fall under three BLS industry categories: goods-producing industries, transportation and utilities, and wholesale trade.

TABLE 10
INDUSTRY CATEGORIES AND RELEVANT SIC CODES

Industry Category	Bureau of Labor Statistics SIC codes	SIC Codes for Additional TRI Industry Groups
Goods-Producing Industries	10 - 39	10, 12
Transportation & Utilities	40 - 49	49
Wholesale Trade	50, 51	51

Source: Bureau of Labor Statistics, Employment Cost Indexes and Levels, 1975-94, U.S. Department of Labor, Washington, D.C., Bulletin 2447, September 1994, p. 148.

Although this analysis provides reasonable alternative wage estimates, the wage rates in the specific SIC codes affected may differ somewhat from the average salary levels reported by BLS for an industry category.

Table 11 presents the salary data from BLS for each labor category and level of interest within each industrial category. Annual salaries are calculated by multiplying the weekly salary data, for July 1993, by 52 weeks. Some salary data were unavailable for the transportation and utilities and wholesale trade industry categories. Pay relative multipliers were used to estimate the missing salary information.[17] Pay relatives allow cross industry comparisons of pay levels by comparing pay levels as a percent of the national pay level. By multiplying the appropriate pay relative by the known data from the goods-producing industry category, the missing salary information was estimated. For example, to estimate the salary for a level six engineer within the wholesale trade industry category, the weekly salary for a level six engineer in the goods-producing industry ($1531) was multiplied by 96/100 (the ratio of the pay relatives for an engineer in the wholesale trade industry to an engineer in the goods-producing industry).

Table 3 of Bureau of Labor Statistics on Employer Costs for Employee Compensation, March 1993.

Bureau of Labor Statistics, National Summary, 1993, Table G-2, p. 104. Pay relatives are generally available for professional (including accountants, engineers, and attorneys), technical, and clerical levels. Because the pay relative scales are developed to reflect broad industry comparisons, however, they may not necessarily reflect accurate comparisons for the specific occupations and/or levels used in this analysis.

TABLE 11
Average Annual Salary by BLS Industrial Category[1]

Industry Category	Level	Attorney	Engineer	Accountant	Secretarial
All Goods Producing Industries	I	na	na	na	$21,372
SIC 10, 12	II	na	na	na	$24,284
	III	na	$45,760	$39,624	$27,716
	IV	$91,364	$54,964	$51,064	$31,720
	V	$106,860	$66,144	$66,508	$39,156
	VI	$135,564	$79,612	$80,548	na
	VII	na	$92,248	na	na
	VIII	na	$110,084	na	na
Transportation & Utilities	I	na	na	na	$21,008
SIC 49	II	na	na	na	$24,648
	III	na	$48,360	$40,404	$28,184
	IV	$88,400	$57,044	$51,740	$33,280
	V	$105,560	$66,664	$65,312	$39,676
	VI	$138,268[2]	$79,664	$82,940	na
	VII	na	$95,004[3]	na	na
	VIII	na	$113,412[4]	na	na
Wholesale Trade	I	na	na	na	$19,448
SIC 51	II	na	na	na	$23,296
	III	na	$42,224	$38,168	$27,300
	IV	$86,840	$53,560	$49,712	$32,708
	V	$101,556	$64,532	$63,908	$39,520
	VI	$128,856[5]	$76,440[6]	$76,648	na
	VII	na	$88,556[7]	na	na
	VIII	na	$105,664[8]	na	na

[1] Occupational Compensation Survey, National Summary, 1993. U.S. Department of Labor, Bureau of Labor Statistics, Bulletin 2458, December 1994.

[2] Missing data point required a pay relative to be used. (Salary for an Attorney VI from Goods Producing * 103/101).

[3,4] Missing data points required a pay relative to be used. (Salary for Engineer VII and VIII from Goods Producing * 103/100).

[5] Missing data point required a pay relative to be used. (Salary for Attorney VI from Goods Producing * 98/103).

[6,7,8] Missing data points required a pay relative to be used. (Salary for Engineer VI, VII, and VIII from Goods Producing * 96/100).

The methodology used to derive the wage rates for each labor category (managerial, technical, and secretarial) is the same as described above. The salary information from BLS was adjusted to 1995 dollars using the Employee Cost Index and multiplied by a benefits and an overhead factor to estimate the fully loaded salary for each labor category. Table 12 presents the ECI ratio and benefits to wages ratio used in the wage rate calculations for each labor category within the Transportation and Utilities and Wholesale Trade industries categories. The ratio of benefits to wages is calculated based on general data on wages and benefits for managerial, technical, and secretarial labor within service-producing industries.

Table 13 presents the wage rate calculations for each labor category in the Transportation and Utilities and Wholesale Trade industries. As described above, the managerial and technical level wage rates are composites of the BLS wage rates for several occupation categories and levels. The managerial level wage rate is a composite of the wage rates of Engineers (levels VI-VIII), Accountants (levels V-VI), and Attorneys (levels IV-V). The technical level wage is a composite of the wage rates of Engineers (levels III-VIII) and Accountants (levels (III-VI). The secretarial wage rate is an average of all the secretarial wage levels provided by BLS (i.e., levels I-V). The weighing factors used to develop the managerial and technical wage rates are based on information provided by the chemical industry and chemical industry trade associations on the typical fraction of total reporting effort that is accounted for by each specific BLS occupation category.[18]

The methodology used for the CAIR analysis also used wage information for chemists in estimating the managerial and technical wage rates. The current methodology does not include chemists in estimating the composite wage rates because updated information on wage levels for chemists was not available from BLS. The Engineer salary information is expected to be an adequate proxy for Chemist salary information.

TABLE 12
EMPLOYMENT COST INDICES AND BENEFIT TO WAGES RATIO ESTIMATES

Industry Category	Labor Category	BLS ECI Occupational Category	ECI Wages and Salaries Private Industry[1] 1993 June	1995 March	ECI Ratio 6/93:3/95	March 1995 % of Compensation[2] Wages	Benefits	Ratio of Benefits to Wages
Transportation & Utilities SIC Code 49	Managerial	Executive, Administrative & Managerial Occupations	115.3	121.9	1.057	72.5%	27.5%	0.38
	Technical	Professional Specialty & Technical Occupations	117.9	123.7	1.049	74.2%	25.8%	0.35
	Secretarial	Administrative Support incl. Clerical Occupations	116.1	122.9	1.059	71.8%	28.2%	0.39
Wholesale Trade SIC Code 51	Managerial	Executive, Administrative & Managerial Occupations	115.3	121.9	1.057	72.5%	27.5%	0.38
	Technical	Professional Specialty & Technical Occupations	117.9	123.7	1.049	74.2%	25.8%	0.35
	Secretarial	Administrative Support incl. Clerical Occupations	116.1	122.9	1.059	71.8%	28.2%	0.39

[1] Bureau of Labor Statistics, Employment Cost Index, Historical Listing, July 25, 1995, Table 6.
[2] Bureau of Labor Statistics, Employer Costs for Employee Compensation - March 1995, USDL Bulletin: 95-225, June 22, 1995, Table 11.

TABLE 13
LOADED HOURLY WAGE RATES BY INDUSTRY AND LABOR CATEGORY

Industry Category	Labor Category	Occupation Level	Weighting Factor	1993 Composite Salary	ECI Ratio 6/93:3/95	1995 Adjusted Salary	1995 Benefits (% Salary)	1995 Overhead	1995 Loaded Annual Salary	1995 Loaded Hourly Rate
Transportation & Utilities (SIC Code 49)	Managerial	Engineer (6-8)	10/17	56,484						
		Attorney (4-6)	5/17	32,569						
		Account. (5-6)	2/17	8,721						
		Composite	17/17	$97,774	1.057	$103,347	38.0%	17.0%	$160,188	$77.01
	Technical	Engineer (3-8)	5/6	63,907						
		Account. (3-6)	1/6	10,017						
		Composite	6/6	$73,924	1.049	$77,546	35.0%	17.0%	$117,870	$56.67
	Secretarial	Sec. (1-5)	1/1	29,359						
		Composite	1/1	$29,359	1.059	$31,091	39.0%	17.0%	$48,503	$23.32
Wholesale Trade (SIC Code 51)	Managerial	Engineer (6-8)	10/17	53,072						
		Attorney (4-6)	5/17	31,104						
		Account. (5-6)	2/17	8,267						
		Composite	17/17	$92,444	1.057	$97,713	38.0%	17.0%	$151,455	$72.81
	Technical	Engineer (3-8)	5/6	59,859						
		Account. (3-6)	1/6	9,519						
		Composite	6/6	$69,376	1.049	$72,776	35.0%	17.0%	$110,619	$53.18
	Secretarial	Sec. (1-5)	1/1	28,454						
		Composite	1/1	$28,454	1.059	$30,133	39.0%	17.0%	$47,008	$22.60

Table 14 compares the loaded hourly wage results from Table 13 to the wage rates used in the analysis as calculated for the manufacturing sector, based on data from the goods-producing industry. Wage rates in the goods-producing sector are higher than wages in the service-providing sector. These differences, however, are very slight for the occupations and labor categories assumed to be required to perform the tasks under the TRI reporting program. Because the differences in the wage rates are so slight across the different industry categories, the estimated costs developed using the original wage rates are expected to be appropriate for the industry groups proposed for addition to TRI.

TABLE 14
Loaded Hourly Wage Rates by Industry and Labor Category
(1995 Dollars)

Industry Category	Managerial	Technical	Secretarial
Goods-Producing	$77.61	$58.29	$23.65
Transportation & Utilities	$77.01	$56.67	$23.32
Wholesale Trade	$72.81	$53.18	$22.60

Tables 15 through 22 describe the costs associated with the burden described in section 6(a). According to Section 313(g)(2) of EPCRA, facilities may use readily available data to report to TRI. By law, no additional monitoring or measurement of quantities, concentrations or frequency of release of any listed chemical is required for the purpose of reporting to TRI. Therefore, there are no capital or start-up costs attributable to TRI for monitoring, sampling or testing equipment.

TABLE 15 - COST PER ACTIVITY

LEVEL	ACTIVITY	ANNUAL UNIT COST	
		First Year	Subsequent Years
Per Facility	Rule Familiarization	$2,243	0
	Compliance Determination	$1,010	$252
Per Form R	Calculations	$4,325	$2,952
	Recordkeeping	$257	$257
	Subtotal - Form R	$4,582	$3,209
Per Certification Statement	Calculations	$2,947	$2,006
	Recordkeeping	$154	$154
	Subtotal - Certification	$3,101	$2,160

TABLE 16 - AVERAGE COST PER FACILITY FOR FORM R

SIC	Rule Familiarization (Average cost per facility)	Compliance Determination (Average cost per facility)	Average Number of Reports per Facility Form R	Average Calculation and Report Completion Cost per Facility	Average Recordkeeping Cost per Facility	Total Cost for an Average Facility
FIRST YEAR						
10	$2,243	$1,010	4	17,300	1,028	21,581
12	$2,243	$1,010	2	8,650	514	12,417
4911/4931/4939	$2,243	$1,010	4.5	19,463	1,157	23,872
4953	$2,243	$1,010	31	134,075	7,967	145,295
5169	$2,243	$1,010	10.5	45,413	2,699	51,364
5171	$2,243	$1,010	3	12,975	771	16,999
7389	$2,243	$1,010	5	21,625	1,285	26,163
SUBSEQUENT YEARS						
10	0	$252	4	11,808	1,028	13,088
12	0	$252	2	5,904	514	6,670
4911/4931/4939	0	$252	4.5	13,284	1,157	14,693
4953	0	$252	31	91,512	7,967	99,731
5169	0	$252	10.5	30,996	2,699	33,947
5171	0	$252	3	8,856	771	9,879
7389	0	$252	5	14,760	1,285	16,297

TABLE 17 - AVERAGE COST PER FACILITY FOR CERTIFICATION

SIC	Average Number of Certifications per Facility	Average Cost of Calculations and Report Completion per Facility	Average Cost of Recordkeeping per Facility	Total Cost for an Average Facility
FIRST YEAR				
10	0	0	0	0
12	0	0	0	0
4911/4931/4939	1.5	4,421	231	4,652
4953	10	29,470	1,540	31,010
5169	3.5	10,315	539	10,854
5171	0	0	0	0
7389	0	0	0	0
SUBSEQUENT YEARS				
10	0	0	0	0
12	0	0	0	0
4911/4931/4939	1.5	3,009	231	3,240
4953	10	20,060	1,540	21,600
5169	3.5	7,021	539	7,560
5171	0	0	0	0
7389	0	0	0	0

TABLE 18

DISTRIBUTION OF ESTIMATED COSTS BY COMPLIANCE ACTIVITY - FORM R
FIRST YEAR
(1995 Dollars)

SIC Code	Estimated Costs for Rule Familiarization ($ thousands)	Estimated Costs for Compliance Determination ($ thousands)	Estimated Costs for Form R Completion ($ thousands)	Estimated Total Costs ($ thousands)
10 (except 1081)	$736	$331	$5,394	$6,461
12 (except 1240)	$720	$1,766	$2,945	$5,431
4911/4931/4939	$2,185	$984	$19,150	$22,319
4953	$368	$166	$30,443	$30,977
5169	$1,754	$2,829	$38,319	$42,902
5171	$8,617	$3,880	$56,850	$69,348
7389 (partial)	$38	$17	$390	$445
TOTAL	$14,417	$9,973	$153,492	$177,883

TABLE 19
DISTRIBUTION OF ESTIMATED COSTS BY COMPLIANCE ACTIVITY
CERTIFICATION STATEMENTS--FIRST YEAR
(1995 Dollars)

SIC Code	Estimated Costs for Alternate Certification ($ thousands)
10 (except 1081)	$0
12 (except 1240)	$0
4911/4931/4939	$4,317
4953	$229
5169	$8,637
5171	$0
7389 (partial)	$0
TOTAL	$13,184

TABLE 20
DISTRIBUTION OF ESTIMATED COSTS BY COMPLIANCE ACTIVITY
FORM R--SUBSEQUENT YEAR
(1995 Dollars)

SIC Code	Estimated Costs for Compliance Determination ($ thousands)	Estimated Costs for Form R Completion ($ thousands)	Estimated Total Costs ($ thousands)
10 (except 1081)	$83	$3,766	$3,849
12 (except 1240)	$442	$2,056	$2,498
4911/4931/4939	$246	$13,370	$13,616
4953	$41	$21,255	$21,296
5169	$707	$26,753	$27,460
5171	$970	$39,691	$40,661
7389 (partial)	$4	$272	$276
TOTAL	$2,493	$107,163	$109,656

TABLE 21

DISTRIBUTION OF ESTIMATED COSTS BY COMPLIANCE ACTIVITY - CERTIFICATION STATEMENTS
SUBSEQUENT YEAR
(1995 Dollars)

SIC Code	Estimated Costs for Alternate Certification ($ thousands)
10 (except 1081)	$0
12 (except 1240)	$0
4911/4931/4939	$3,007
4953	$160
5169	$6,017
5171	$0
7389 (partial)	$0
TOTAL	$9,184

TABLE 22
BREAKDOWN OF ESTIMATED TOTAL COSTS BY INDUSTRY
(1995 Dollars)

SIC Code	First Year Estimated Total Costs ($ thousands)	Subsequent Years Estimated Total Costs ($ thousands)
10 (except 1081)	$6,461	$3,849
12 (except 1240)	$5,431	$2,498
4911/4931/4939	$26,636	$16,624
4953	$31,206	$21,456
5169	$51,539	$33,478
5171	$69,348	$40,661
7389 (partial)	$445	$277
TOTAL	$191,066	$118,842

6© Agency Burden and Costs

This section examines costs EPA would incur if the proposed rule were promulgated. By adding additional industries to the TRI program, EPA incurs costs for data processing, outreach and training, information dissemination, policy and petitions, and compliance and enforcement. This requires additional EPA personnel, as well as extramural funds (for example, for contractor employees to perform data processing).

There are five categories of activities: data processing, outreach and training, information dissemination, policy and petitions, and compliance and enforcement. These activities are described in Table 23.

EPA measures its resource requirements in terms of the number of data elements that must be processed. (A data element is a single unit of information reported on Form R or certification statement, such as facility address or the number of pounds of the chemical released to air, that is entered into the TRI Information Management System.)

There are an average of 103 data elements entered into the system for each Form R. It is assumed that the average number of data elements per report for facilities in SIC codes 20-39 is applicable to the expansion SIC codes.

There are cost savings to EPA associated with a certification statement because a certification statement contains much less information, and therefore, fewer data elements, than a Form R report (an average of 31 data elements compared to an average of 103 per Form R).[19]

Based on past experience in operating the TRI program, there are 2.61 employees (also known as full time equivalents, or FTEs) and $551,600 in extramural costs for each million data elements processed. Thus, the incremental increase in FTEs and extramural cost for TRI expansion is estimated by applying the following equations:

Incremental FTEs = [2.61 Incremental FTEs per Million Data Elements] * [Number of Data Elements in Millions]

Incremental Extramural Cost = [$551,600 Incremental Extramural Cost per Million Data Elements] * [Number of Data Elements in Millions]

The analysis assumes that half of FTE requirement is met by EPA employees at the general pay scale grade 12 (i.e., GS-12, with a loaded salary of $69,370) and half by employees at grade 13 (i.e., GS-13, at a loaded salary of $82,491).

Prior to determining the final option for expanding the TRI program to additional industries, it is difficult to estimate the additional first-year costs to be incurred by EPA for outreach and other activities. At this time, the additional first-year costs are roughly estimated at $1 million dollars. These costs are expected to be incurred in the first year only and are in addition to the costs estimated and presented in Table 25.

[19]The alternate threshold reporting requirements are newly added to the TRI program. Thus, the true average number of data elements per certification statement is not yet available. For this reason, the estimated costs to EPA in this analysis is based on the expected average number of data elements per certification statement based on reporting on Form Rs for those data elements contained on a certification statement.

Table 23
EPA Activities for TRI

Category	Description
Data Processing	Data Entry (entering the information into the database, microfilming or microfiching the reports, and filing all reports); Data Quality (reviewing reports for completeness, errors and inconsistencies, making inquiries to resolve discrepancies, and reentering corrected data); Magnetic Media Support (distributing computer program for electronic submissions); programming and operating the EPA mainframe and local area network; Data Analysis (developing tools to use TRI data, analyzing data to support EPA needs, preparing data for use by others); and EPCRA Reporting Center fixed costs (rent, form storage).
Outreach & Training	Providing EPCRA technical hotline, technical guidance, industry outreach, and regional, state and public training; responding to requests for information through TRI User Support.
Information Dissemination	Public access through the National Library of Medicine (NLM) database, microfiche, CD-ROM, and computer diskettes.
Policy & Petitions	Analysis to support petitions, list revisions, trade secret claims, and rulemakings.
Compliance & Enforcement	Technical assistance, compliance outreach, facility inspections, issuance of cases and creation of Supplemental Environmental Projects (SEPs).

Table 24
EPA Cost and FTE Model

Category[1]		Incremental FTEs (Per Million Data Elements)	Incremental Extramural Cost ($Thousands Per Million Data Elements)
Data Processing:	HQ/OPPT	0.42	383.3
Outreach & Training:	HQ/OPPT	0.21	40.6
Information Dissemination:	HQ/OPPT	0.21	55.7
Policy & Petitions	HQ/OPPT	0.42	22.9
	REGIONS	0.52	-
	Subtotal	0.94	22.9
Enforcement & Compliance	HQ/OECA	0.21	5.2
	HQ/OPPT	0.10	2.1
	REGIONS	0.52	41.7
	Subtotal	0.83	49.0
	TOTAL	2.61	551.6

[1] Activities labeled HQ are performed at EPA headquarters, in either the Office of Pollution Prevention and Toxics (OPPT) or the Office of Enforcement and Compliance Assurance (OECA). Activities labeled REGIONS are performed in EPA's regional office.

TABLE 25
SUMMARY OF INCREMENTAL EPA COSTS
(Thousands of 1995 Dollars)

DESCRIPTION	PROPOSED OPTION
FORM Rs	
# Data Elements	3,446,689
FTEs	9.0
Cost of FTEs	$683
Extramural Cost	$1,901
Subtotal	$2,584
CERTIFICATIONS	
# Data Elements	131,781
FTEs	0.3
Cost of FTEs	$26
Extramural Cost	$73
Subtotal	$99
Total EPA Costs	$2,683

6(d) Total Burden and Cost

For the first year of the program the total burden and cost to industry respondents are displayed in Table 26.

TABLE 26
BOTTOM LINE INDUSTRY BURDEN AND COST - FIRST YEAR

	Burden Hours	**Cost** ($ in thousands)
Form R	2,859,041	177,883
Certification Statement	210,000	13,184
Total	3,069,041	191,067

For subsequent years, the total burden and costs to respondents are displayed in Table 27.

TABLE 27
BOTTOM LINE INDUSTRY BURDEN AND COST - SUBSEQUENT YEAR

	Burden Hours	**Cost** ($ in thousands)
Form R	1,779,576	109,656
Certification Statement	147,084	9,184
Total	1,926,660	118,840

The cost to EPA is displayed in Table 28.

TABLE 28
AGENCY COST

First Year	$3.7 million
Subsequent Years	$2.7 million

6(e) Reasons for Change in Burden

If the proposed amendments associated with this ICR are finalized as currently presented, EPA estimates that the total respondent burden will increase by 1.9 million hours. This potential increase is due to the addition of the following 7 industry groups: ....(list groups).

With the final rule, EPA will be amending the existing burdens associated with overall TRI reporting and recordkeeping (i.e., associated with both Form R and the Certification). Specifically, EPA will be amending the Certification ICR (EPA ICR #1704) by submitting an Information Correction Worksheet to OMB that adjusts the burden hours associated with that ICR to include the new burden hours imposed by the final rule, as well as any other changes in burden hours that have occurred since the approval of that ICR. In addition, EPA will be amending the Form R ICR (EPA ICR #1663) to incorporate the final rule burden hours, as well as any other changes in burden hours that have occurred since the approval of that ICR. For illustrative purposes, EPA has calculated the burden adjustments related to overall TRI reporting and recordkeeping requirements ans provided a summary of the total anticipated burden in Table 29. The additional changes in burden can be attributed to the following 4 primary factors:

1) **1994 Adjustment:** This adjustment resulted in an increase of 1.746 million burden hours. The additional hours are incurred due to an adjustment in the number of hours associated with the reporting and recordkeeping needed for Form R completion.

2) **Chemical Expansion:** In November 1994, EPA added 286 chemicals and chemical categories to the EPCRA section 313 list of chemicals and chemical categories. These new chemicals were reportable starting with the 1995 reporting year for reports due July 1, 1996. This program change resulted in an increase of 729 thousand burden hours. Since the ICR for the Certification Statement was approved in March 1995, the effect of the chemical expansion was already included in the baseline for Certification Statements

3) **Alternate Threshold:** In November 1994, EPA provided a simplified reporting option for facilities with less than 500 pounds of a reportable annual amount (equivalent to production related wastes). Facilities that do not exceed the reportable amount of 500 pounds and that do exceed the alternate activity threshold of 1 million pounds have the option of reporting on a two page certification statement in lieu of the 9 page Form R. This program change resulted in a net decrease of 408 thousand burden hours.

4) **Delisting Petitions:** The list of toxic chemicals subject to reporting under EPCRA section 313 is not static. The list can be modified either as a result of an Agency-initiated action or as a result of a petition submitted by the public. If a listed chemical does not meet the toxicity criteria of EPCRA section 313(d)(2), the Administrator may delete the chemical from the EPCRA section 313 list. This program change resulted in a decrease of 563 thousand burden hours.

TABLE 29 - Change in Burden from Baseline

Activity - Explanation	**# 1363 -** Form R (OMB #2070-0093)		**#1704 -** Certification Statement (OMB #2070-1043)		NET TRI Burdens	
	# Responses	Total Burden Hrs	# Responses	Total Burden Hrs	Net Change	Total Burden
1992 BASELINE - Burden on OMB's Inventory in May 1992, based on a 1990 ICR that was amended to include PPA related burden	**+112,000**	**+4,887,680**	---	---	---	**4,887,680**
1994 ADJUSTMENT - Update of burden hours based on current estimates of burden per form	**0**	**+1,746,320**	---	---	**+1,746,320**	**6,634,000**
1994 PROGRAM CHANGE - CHEMICAL EXPANSION: Since the ICR for the Certification Statement was approved in March 1995, the effect of the chemical expansion was already included in the baseline for Certification Statements	**+14,036**	**+729,872**	---	---	**+729,872**	**7,363,872**
1995 PROGRAM CHANGE - ALTERNATE THRESHOLD	**-23,288**	**-1,210,976**	**+23,288**	**+803,436**	**- 407,540**	**6,956,332**
1995 PROGRAM CHANGE - PETITION DELISTINGS	**- 9,305**	**-483,860**	**-2,241**	**-77,314**	**-561,174**	**6,395,158**
1996 PROGRAM CHANGE - ADDITION OF NEW INDUSTRY GROUPS	**+33,463**	**+1,779,576**	**+4,251**	**+147,085**	**+1,926,661**	**8,321,819**
Total	**+126,906**	**+7,448,612**	**+25,298**	**+873,207**	**+3,434,139**	**8,321,819**

6(f) Burden Statement

This information would be collected from industrial facilities in local communities in order to provide basic information to those communities and the general public, as well as to the regulated community and all levels of government, on releases and other waste management practices involving listed toxic chemicals. Collection of this data would further EPA's goal of enhancing community right-to-know. Provision of this information would be mandatory, pursuant to EPCRA section 313 (42 U.S.C. 11023) and PPA section 6607 (42 U.S.C. 13106). Regulations codifying the EPCRA section 313 reporting requirements can be found at 40 CFR Part 372. Respondents may designate the specific chemical identity of a substance as a trade secret, pursuant to EPCRA section 322 (42 U.S.C. 11042). Regulations codifying the trade secret provisions can be found at 40 CFR Part 350. Currently, approximately 23,000 facilities report on TRI.

For Form R, the industry reporting burden for collecting this information (including recordkeeping) is estimated to average 74 hours per report in the first year (69 hours for calculations and 5 hours for recordkeeping). In subsequent years, the burden is estimated to average 52.1 hours per report (47.1 hours for calculations and 5 hours for recordkeeping). A number of facilities are expected to file Toxic Chemical Release Inventory Certification Statement instead of full From Rs. The burden for these Certification Statements is estimated to average 49.4 hours per report in the first year (46.4 hours for calculations and 3 hours for recordkeeping). In subsequent years, the burden is estimated to average 34.6 hours per report (31.6 hours for calculations and 4 hours for recordkeeping).

The proposed rule would result in an estimated 6,428 additional respondents submitting an estimated total of 33,463 Form Rs and 4,251 Toxic Chemical Release Inventory Certification Statements. This results in an estimated total hour burden of 3.1 million hours in the first year and 1.9 million hours in subsequent years.

These estimates include the time needed to review instruction; search existing data sources; gather and maintain the data needed; complete and review the collection of information; and transmit or otherwise disclose the information. The actual burden to a specific facility may deviate from this estimated average depending on the complexity of the facility's operations and the profile of releases at the facility.

Burden means the total time, effort, or financial resources expended by persons to generate, maintain, retain, or disclose or provide information to or for a Federal agency. This includes the time needed to review instructions; develop, acquire, install, and utilize technology and systems for the purposes of collecting, validating, and verifying information, processing and maintaining information, and disclosing and providing information; the time needed to adjust the existing ways to comply with any previously applicable instructions and requirements; train personnel to be able to respond to a collection of information; search data sources; complete and review the collection of information; and transmit or otherwise disclose the information.

The Agency may not conduct or sponsor, and a person is not required to respond to a collection of information unless it displays a currently valid OMB control number. The OMB control numbers for EPA's regulations are listed in 40 CFR Part 9 and 40 CFR chapter 15. The collection of information and other requirements under section 313 of EPCRA and section 6607 of the PPA on the Form R are covered under OMB approval number 2070-0093 (EPA ICR No. 1363). Although this approval number normally would have expired on November 30, 1992, it remains in effect until further Agency action pursuant to the 1993 Department of Veterans Affairs and Housing and Urban Development and Independent Agencies Appropriations Act, Pub. L. 102-389, signed October 6, 1992. The Office of Management and Budget has approved the information collection requirements for the Toxic Release Inventory Certification Statement and has assigned OMB control number 2070-0143 (EPA ICR No. 1704).

Comments are requested on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques. Send comments on the ICR to the EPA at:

Sandy Farmer, OPPE Regulatory Information Division
U.S. Environmental Protection Agency (2136)
401 M Street, S.W.
Washington, D.C. 20460

or electronically by sending an e-mail message to "farmer.sandy@epamail.epa.gov." A copy of any comments must also be sent to:

Office of Information and Regulatory Affairs
Office of Management and Budget
725 17th Street, N.W.,
Washington, D.C. 20503
"Attention: Desk Officer for EPA."

Please remember to include the ICR number in any correspondence.

REFERENCES

Arbuckle, J. Gordon, et al., 1993. Environmental Law Handbook, Twelfth Edition. Government Institutes, Inc., Rockland MD.

Bureau of Labor Statistics, U.S. Department of Labor. Employer Costs for Employee Compensation - March 1995, USDL Bulletin: 95-225. June 22, 1995. Table 11.

Bureau of Labor Statistics, U.S. Department of Labor. Occupational Compensation Survey, National Summary 1993, U.S. Department of Labor, Washington, D.C., Bulletin 2453, December 1994, Tables D-1 and D-3.

Bureau of National Affairs, 1995. "State Pollution Prevention Laws & Programs and Document Submissions Chart."

Burke, Lauretta M., 1993. Environmental Equity in Los Angeles (Santa Barbara: University of California Center for Geographic Information and Analysis, July).

California Air Resources Board, Technical Support Division, 1993. Emissions Inventory Criteria and Guidelines Regulation Pursuant to the Air Toxics "Hot Spots" Information and Assessment Act of 1987 (as amended June 1990, September 1990, June 1991, and June 1993).

California Air Resources Board, undated. "Overview of the Air Toxics 'Hot Spots' Information and Assessment Act."

Chikkala, John, 1995. Minnesota Department of Public Safety Emergency Response Commission. Conversation with Abt Associates. November 13.

Chines, Peter (1994). Investor Responsibility Research Center, Inc. Letter to Samuel Sasnett, U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics, April 21, 1994; and attachment, "How to Read IRRC's Corporate Environmental Profiles," pp. 18-19.

Citizens Fund, 1993. Poisons in Our Neighborhoods: Toxic Pollution in the United States (Washington, DC: Citizens Fund, November).

Citizens Fund, 1992. Manufacturing Pollution (Washington, DC: Citizens Fund, August).

Cummens, Pat, 1993. Untitled presentation, in Proceedings: Toxics Release Inventory (TRI) Data Use Conference (Washington, DC: U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics, July).

Doer, Lisa, 1995. "How TRI Can Drive Pollution Prevention," in Proceedings: Toxics Release Inventory (TRI) Data Use Conference: Building TRI and Pollution Prevention Partnerships

(Washington, DC: U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics, March).

Donaghue, Bob, 1995. "Prioritizing Pollution Prevention Assistance Needs Using the 1992 Toxic Release Inventory," in Proceedings: Toxics Release Inventory (TRI) Data Use Conference: Building TRI and Pollution Prevention Partnerships (Washington, DC: U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics, March).

Dunst, Russ, 1995. Wisconsin Department of Natural Resources. Conversation with Abt Associates. November 14.

Goodenow, Dennis California Air Resources Board (CARB), 1995. Personal communication with Abt Associates, August 29, 1995.

Great Lakes Information Network, 1996. "Regional Air Pollutant Inventory Development System," Information from Great Lakes Information Network World Wide Web site: (http://www.glc.org/projects/air/rapids/rapids.html)

Greene, Terry, 1995. "JSI Community Outreach Project," in Proceedings: Toxics Release Inventory (TRI) Data Use Conference: Building TRI and Pollution Prevention Partnerships (Washington, DC: U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics, March).

Hartmann, Carolyn, 1993. Troubled Waters: Major Sources of Toxic Water Pollution (Washington, DC: U.S. Public Interest Research Group, June).

Hausman, Rick, 1993. "Environmental Investing: Dollars and Change," Online: The RTK NET Newsletter, Vol. 3, No. 2 (Fall).

Herring, Jeff, OAQPS, 1995. Personal communication with Abt Associates, August 21, 1995.

ICF Incorporated, 1996. Fax transmission from Maravene Edelstein to John Ferris dated 5/8/96, with table containing information of Tier II (EPCRA Section 312) data availability by state.

ICF Incorporated, 1993. Data Gaps and Redundancies in Pollution Prevention Reporting; A Compendium of Memoranda. Prepared for U.S. EPA, Office of Prevention, Pesticides, and Toxics, Pollution Prevention Division.

Kleeman, Jane, AFS Emissions Coordinator, 1995 Personal communication with Abt Associates, September 5, 1995.

Kolwey, Neil and Margery Lynch, 1994. Pollution Prevention Priorities: A Study of Priorities for Pollution Prevention Activities in Colorado (Colorado Pollution Prevention Advisory Board, May).

MacLean, Alair and Paul Orum, 1992. Progress Report: Community Right-to-Know (Washington, DC: OMB Watch and Working Group on Community Right-to-Know, July).

MacLean, Alair and Rich Puchalsky, 1994. Where the Wastes Are: Highlights from the Records of the More Than 5,000 Facilities that Receive Transfers of TRI Chemicals (Washington, DC: OMB Watch and Unison Institute, April).

Massachusetts Toxics Use Reduction Institute, 1994. Toxics Use Reduction: Fact Sheet 1. Lowell, MA: University of Massachusetts Lowell. February.

Massachusetts Department of Environmental Protection, 1993. An Overview of the Toxics Use Reduction Act. Prepared by Manik Roy. February.

McLure, Pam, 1994. "Georgia on My Mind", Online: The RTK NET Newsletter, Vol. 4, No. 1 (Summer).

Memorandum from J. Karnes to Brian Muehling (EPA/OTS) on Updating of Unit Labor Costs to Reflect Inflation and Industry Comments for CAIR, Centaur Associates Inc. May 28, 1987.

National Conference of State Legislatures (NCSL), 1995. "1995 State TRI Program Assessment."

"Notes from the Field: Students Use SARA Title III Data to Conduct Local Toxic Waste Audits," Hazardous Materials Dialogue, Vol. 4, No. 1, 1992.

Orum, Paul and Beth Wohlberg, 1994. "Reports Using Toxics Release Inventory (TRI) Data," Working Notes on Community Right to Know, July-August.

Pope, Anne, OAQPS, 1995. Personal communication with Abt Associates, September 6, 1995.

Quinn, Bill. 1995. Arizona Department of Environmental Quality. Conversation with Abt Associates. November 14.

Radian Corporation, 1993. *Volatile Organic Compound (VOC)/Particulate Matter (PM) Speciation Data System (SPECIATE) User's Manual Version 1.5 Final Report,* February 1993.

Ratza, Carol, Great Lakes Information Network (GLIN) Director, 1995. Email communication with Abt Associates, August 30, 1995.

Recer, Gregg, and Thomas Johnson, 1995. "Risk Screening in New York State Using Toxic Release Inventory Data," in Proceedings: Toxics Release Inventory (TRI) Data Use Conference: Building TRI and Pollution Prevention Partnerships (Washington, DC: U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics, March).

Review and Update of Burden and Cost Estimates for EPA's Toxics Release Inventory Program, August 1993.

Rice, Faye, 1993. "Who Scores Best on the Environment," Fortune, Vol. 128, No. 2 (July 26, 1993).

Rubin, Steve, Data Management Branch OECA, 1995. Personal communication with Abt Associates, November 3, 1995.

Seitz, John S., Director OAQPS, 1995. Memorandum: "Title V Permitting for Nonmajor Sources in Recent Section 112 Maximum Achievable Control Technology (MACT) Standards," May 16, 1995.

Settina, Nita and Paul Orum, 1991. Making the Difference, Part II: More Uses of Right-to-Know in the Fight Against Toxics (Washington, DC: Center for Policy Alternatives and Working Group on Community Right-to-Know, October).

Smith, Ted, 1992. Untitled presentation, in Proceedings: Toxic Release Inventory (TRI) Data Use and Pollution Prevention Conference (Washington, DC: U.S. Environmental Protection Agency, Office of Pollution Prevention and Toxics, June).

Southerland, Jim, OAQPS, 1995. Personal communication with Abt Associates, August 29, 1995.

Swanson, Joanna, OAQPS, 1995. Personal communication with Abt Associates, August 21, 1995.

Templet, Paul H., 1993. "The Emissions to Jobs Ratio," Environmental Science and Technology, Vol. 27, No. 5 (May).

Texas Network for Environmental and Economic Justice, 1993. Toxics in Texas and their Impact on Communities of Color (Austin, TX: Texas Network for Environmental and Economic Justice, March).

Tryens, Jeffrey, Richard Schrader, and Paul Orum, undated. Making the Difference: Using the Right-to-Know in the Fight Against Toxics (Washington, DC: Center for Policy Alternatives and Working Group on Community Right-to-Know).

U.S. EPA, Regulatory Impacts Branch, Office of Pollution Prevention and Toxics. Regulatory Impact Analysis of the Final Rule to Add Various Chemicals and Chemical Categories to the EPCRA Section 313 List of Toxic Chemicals. November 18, 1994.

U.S. EPA, Office of Toxic Substances. Regulatory Impact Analysis in Support of Final Rulemaking Under Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986. Report prepared by ICF, Incorporated. February 1988.

U.S. EPA, Office of Pollution Prevention and Toxics, Regulatory Impacts Branch. Regulatory Impact Analysis (RIA) of the EPCRA Section 313 Alternate Threshold Final Rule. November 18, 1994.

U.S. EPA, 1991. 1991 Hazardous Waste Report: Instructions and Forms. EPA Form 8700-13A/B (5-80) revised 8-91.

U.S. EPA, 1993. "Proceedings: Toxics Release Inventory (TRI) Data Use Conference." July 1993.

U.S. EPA, 1993b. State Directory: 33/50 and Voluntary Pollution Prevention Programs, 1993. (Washington, DC: U.S. Environmental Protection Agency, Office of Prevention, Pesticides and Toxic Substances, October).

U.S. EPA, 1994. "National Analysis: The Biennial RCRA Hazardous Waste Report (Based on 1991 Data)." September 1994.

U.S. EPA, 1995a. Information from the AIRS AFS Home Page on the U.S. EPA World Wide Web site: (http://www.epa.gov/docs/airs/afs.html).

U.S. EPA, 1995b. "Compilation of Air Pollutant Emission Factors: Volume I: Stationary Point and Area Sources," Office of Air Quality Planning and Standards (OAQPS), January 1995.

U.S. EPA, 1995c. "White Paper for Streamlined Development of Part 70 Permit Applications," Office of Air Quality Planning and Standards (OAQPS), July 10, 1995.

U.S. EPA, 1995d. "Report to President Clinton: Expansion of Community Right-to-Know Reporting to Include Chemical Use Data: Phase III of the Toxics Release Inventory."

U.S. EPA, 1995e. "User's Guide to Federal Accidental Release Databases," Office of Solid Waste and Emergency Response, September 1995.

U.S. EPA, 1995f. Information from the ENVIROFACTS database on the U.S. EPA World Wide Web site: (http://www.epa.gov/enviro/html/ef_home.html).

U.S. EPA, 1995g. "1993 Toxics Release Inventory Public Data Release: State Fact Sheets, Office of Pollution Prevention and Toxics, EPA 745-F-95-002, March 1995.

U.S. EPA, 1996. SPEC.TXT, document on CHIEF (Clearing House for Inventories and Emissions Factors) BBS on the Technology Transfer Network (TTN) BBS. Dialup (919-541-5742) or ftp (ttnftp.rtpnc.epa.gov).

Wakefield, Mary Jean, AFS Helpline 1-800-367-1044, 1995. Conversation with Abt Associates. November 28, 1995.